

THE MACROLEPIDOPTERA OF THE WORLD

A SYSTEMATIC DESCRIPTION OF THE
HITHERTO KNOWN MACROLEPIDOPTERA

IN COLLABORATION WITH WELL-KNOWN SPECIALISTS

EDITED BY

DR. ADALBERT SEITZ, PROFESSOR



DIVISION I: FAUNA PALAEARCTICA VOL. 1—4
WITH SUPPLEMENT — VOL. 1—4

DIVISION II: FAUNA EXOTICA VOL. 5—16
PALAEONTOLOGY, MORPHOLOGY, BIOLOGY AND GEOGRAPHY
OF THE MACROLEPIDOPTERA — VOL. 17



SUPPLEMENT TO VOL. 3.

ALFRED KERNEN, PUBLISHER, STUTTGART

1 9 3 8

THE
PALAEARCTIC
NOCTUID MOTHS

WITH 26 PLATES



SUPPLEMENT



ALFRED KERNEN, PUBLISHER, STUTTGART

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Foreword.

(Partly from Notes left by Prof. Dr. AD. SEITZ, who died on 5th March 1938.)

The publication of Main Volume III of our monumental work took place in the years 1909 to 1913 and the Editor in his remarks in the Preface of this Supplementary Volume mentioned, that in broad outline, the arrangement of the original Volume would be followed and in general this accords with the principles of HAMPSON's *Catalogue of the Lepidoptera Phalaenae* and other existing Catalogues. As, however, HAMPSON's masterly work appeared after ours, WARREN, who edited our Main Volume III, did not have the advantage thereof and was unable to arrange his classifications and systematization etc accordingly. This would, of course, have been desirable, had it been possible. The Editor of this Supplementary Volume considered it of prime importance, for reasons of comparison and lucidity, to follow our original classification and not to re-arrange matters on the basis of HAMPSON's work. There are therefore certain discrepancies, as for instance, in the *Acrionictinae*, *Mominae* and *Bryophilinae*, where our publication was issued before HAMPSON's corresponding chapters were ready. HAMPSON classified the *Acrionictinae* subfamilies after *Amphipyra* etc. On the other hand the *Melicleptriinae* and *Heliothidinae*, which we have placed near the end of our Volume, would, on account of the spined tibiae, have had to be placed at the commencement near the *Agrotinae*.

Neither the Editor nor the Publishers have overlooked the fact that during the last few years a perceptible evolution has taken place in descriptive Entomology. Greater importance is continually being attached to anatomical and microscopical details, as compared with the earlier method of macroscopical characteristics and the habits of the insects. A number of renowned scientists has come to the conclusion that the modern, more physiological examination of specimens calls for a more exact differentiation, based on structural characteristics. These are said to be of greater importance than the earlier more obvious and superficial features and it is held that they should be given first consideration. It can easily be realised that, from our standpoint, we are reluctant to introduce a rather one-sided system of basing ourselves almost exclusively on anatomical differences. We have to bear in mind that ours is a general work, that 95% of our readers are amateurs, enthusiasts and collectors, whereas only 5% are scientists. Prof. Dr. SEITZ has also repeatedly drawn attention to the fact, that in a work that is limited as to capacity, it is impossible to give too minute anatomical or extensive descriptions. In the Supplement of the *Macrolepidoptera of the World*, a little more latitude has been allowed in this regard and where space has permitted, the Editor has given rather more detail than in the past.

Further we have felt that our illustrations are the best and most desired medium, not only for the purpose of denominating, but also for the arrangement of collections. Over 4000 illustrations were given in the Main Volume and we have now added a further 1600. The technique of the illustrator's art has made notable progress in the last 20 years. Very numerous new species have been discovered, especially in palaearctic Asia and Africa. Many forms also, that were previously not available, have now been secured for illustrative purposes. In the Preface of Volume III it was mentioned, that some of the illustrations, especially of the rarer species, left much to be desired, as only poor illustrations in former works were available for reproduction. In many cases these have now been replaced by better illustrations, as the difficulties of obtaining fresh types of the original insects have been overcome. As the Editor has explained in the subsequent short Preface, as a matter of principle, British specimens have been used as typical of British species. Little attention was paid in the past to small divergences from continental specimens of the same moth. The task of the *Macrolepidoptera* was never intended to be a monographic differentiation of local races, but a brief account of the characteristic features of each species and its main subforms. The great majority of aberrations that are

denominated today, have for the last 100 years and even longer, been known and simply classified with the type species and this has been the case even in the best arranged private collections. No one ever thought of taking exception to such a system. It is mainly due to TUTT, that the new system of denominating all shades of variety, has been introduced. While this was well known when Volume III was being published, it had not yet become a general practice. Therefore many specimens were illustrated as the type, which today, in consequence of the publication of some highly specialised monograph, would have a separate distinct designation. In this regard some criticisms have not been merited and further, some denominations have been made, that are quite unjustifiable. For instance the naming of faded specimens. Even with the utmost care and when a collection is kept in cabinets, that are seldom exposed to the light, it is a well known fact, that just with the *Noctuidae*, the colour is liable to change, more or less, in the course of years. The grey-blue and slate colourations are liable to alter to a yellowish brown hue, an occurrence, of which one has long been aware, but which, when taking a broad view, should be considered quite natural and of no particular moment. Further, owing to the many expeditions of later years, certain species have been found in large numbers, whereas formerly but a single faded, worn or damaged specimen was known. In such cases these naturally had to serve the artist as the model for the first illustration of a type. The artist is often in an unenviable position, when, for instance, the owner of an unique specimen, would not part with it even temporarily, but in order to show his good will, tried in an amateur way to make a drawing or a water colour sketch. This was often very unlike the real thing and not in the least true to nature. May we ask our readers to bear in mind, that the exact reproduction of the *Noctuidae* is one of the most difficult tasks that exists and to crave their indulgence therefore, if everything in this Supplementary Volume is not up to perfection.

It will be readily understandable, that had we give full consideration to all the recently published anatomical details, these would have proved an insurmountable obstacle to a rapid completion of the present Supplementary Volume. In any case, constant revision became necessary in an attempt to bring matters up to date and to keep in step with the many new publications dealing with examinations of the genitalia. The Volume was practically ready for final publication in 1935, when a second and yet a third Addenda had to be made in an attempt to include, as far as was possible, all the new material that had become available. The size, that this Volume would have assumed, can easily be imagined, had all the Genera been revised on the basis of recent anatomical examinations, in the same way as Dr. CORTI has dealt with the *Agrotis* and BOURSIN the *Athetis*! Further revisions of this nature are indeed planned and already in preparation and the Editor has had to consider whether it would not have been better to wait with the completion of this Volume until these publications were available. The details they may reveal and which may help to complete our knowledge, could then have been included here. At present also the most interesting parts of the palaearctic territory, the regions where many a secret may yet be divulged — the entire centre of Asia and the greatest part of the Chinese territory — are just at the moment yielding such a wealth of new forms, as has never been known before. The systematic exploration and examination of the fauna of the numerous and diverse chains of mountains in the South and on the borders of Mongolia and the methodic collecting, that is now going on there, especially through the intrepid persistence and activity of Dr. HOENE, are giving the most astonishing results. It might therefore seem to many, quite incomprehensible, that this work should be completed just at a time, when in a relatively short period, its incompleteness and imperfections may become apparent. Nevertheless there must come a time for finality and the period, that had been set for the completion of the whole series of palaearctic Volumes, has already been far exceeded. Continual pressure has been brought to bear on the publishers to press forward with the final publication of this Volume. It may be remarked that the Editor himself is most reluctant and has only decided with a very heavy heart to desist from waiting a little longer in the hope of including some of the numerous, partly quite exceptionally interesting new discoveries, which are now available, but which have not yet been comprehensively examined scientifically.

All we can hope is, that this Supplementary Volume III will be found to be not merely an addition to the Main Volume, but in many ways, an improvement thereon. Some of the more recent publications and here we again especially mention Sir GEORGE HAMPSON's Catalogue, will then have in no mean measure contributed to this success and the help derived from them is here gratefully acknowledged.

Darmstadt, May 1938.

Dr. M. DRAUDT.

Phalaenae, Noctuidiform Moths.

Preface.

By Dr. M. DRAUDT.

In considering the palaearctic *Noctuidae* we are dealing with the same geographical territory as set out in Vol. I of the Supplement. Consequently the large increase in the number of palaearctic *Noctuidae* and especially the last groups of the same, the *Hypeninae*, is excluded as these have chiefly been found in Formosa from whence most of the new descriptions emanate. Formosa decidedly does not belong to the palaearctic group.

Thanks to the excellent methods of capture and research *Noctuidae* show a rich addition of many genuine species, subspecies and local forms. Nearly throughout, a reasonable limit has been set in denominations of new aberrations and an excessive subdivision has only taken place in very few species. The generally more uniform colouration and the very similar type of markings do not encourage nomenclature. Consequently the new names are chiefly for genuine species and or subspecies and this is an agreeable result of the work of the last years.

The additional knowledge has been particularly rich in regard to north african discoveries which are consequent upon the intensive research of OBERTHÜR, ROTHSCILD and TURATI. We have here quite an astonishing wealth of forms. A considerable quantity of new information has been added from the Far East and Japan, and latterly especially also from Spain through the active collecting mainly by austrian collectors.

The handling of the subject matter in Vol. III of the original work did in many respects not give complete satisfaction. The text was too brief and insufficient in regard to many of the descriptions. Frequently also the german translation of the original english text was unsatisfactory, or the translation did not express that which was intended. Further the colour designations in the two languages do not express identically the same because the english expression indicates a different shade than in the german translation. We mention for instance the word "purple". As has been proved in the meanwhile many species and forms were not properly dealt with and others were quite omitted. Every effort will be made to remedy these deficiencies and omissions in the Supplement.

What has just been said in regard to the text also applies but in a greater degree to the handling of the plates. One must admit that just in representing *Noctuidae* one meets with a large measure of difficulty both from the standpoint of the drawing as well as the colouring. It is only in the rarest cases that it is possible to give a perfect representation such as would be possible by an expert draughtsman, like CULOT. In the main volume in general all the *Noctuidae* which occur also in England were illustrated from english specimens. In many cases this explains a certain divergence in the appearance in comparison to the usual continental forms. Thanks to the collaboration of many public institutes it has now often been possible to replace poor illustrations by new ones taken from original specimens. In this regard the unique and comprehensive collection of PÜNGELER in the Berlin Museum has rendered most valuable services. PÜNGELER had promised shortly before his death to give me every help in dealing with the *Noctuidae*. Unfortunately his premature death cancelled these hopes, but fortunately the documents and records which formed the basis of his collection and are a testimony to his unusual care and discernment are at my disposal. We also owe a debt of gratitude to the Museums in Munich, Dresden, Stuttgart and Tring, and further to many other well known collectors, especially Mr. OTTO BANG-

HAAS, FRITZ WAGNER of Vienna and Mr. DANNEHL who have so kindly placed very valuable type material at our disposal.

In broad outline we have followed exactly the classification of the material according to the subdivision in Vol. III of the main Work. In general this followed the principles of HAMPSON, whose volumes of the Cat. Lep. Phal. however were not available at the time the Work was published so that also in this respect complete perfection was not achieved. There will be little to criticise apart from the interposition of the *Mominae*, *Acronyctinae* and *Bryophilinae* which in any case are a strange conglomeration. However in the interest of an easy comparison we have followed the systematic arrangement of the main part of the Work, more especially as in most other Works on the subject this old order is still followed.

1. Family: Agaristidae.

By Dr. M. DRAUDT.

Genus : **Eusemia** *Dalm.*

E. maculatrix *Westw.* This north indian species described in Vol. XI, p. 5 and also illustrated on Plate 4 a *maculatrix*. has predominantly white spotted forewings in the type form. It occurs in W. China on the frontier of the palaeartic region in a partially yellow spotted form for which STRAND has given the following denominations: — ab. **antemedialis** *Strd.* (= ab. 1 *Hmps.*) with upper half of the antemedian and median cell spots of forewings *antemedialis*. coloured yellow. — ab. **cellularis** *Strd.* (= ab. 3 *Hmps.*) is similar but has the spots behind the upper angle of the *cellularis*. cell also yellow. — ab. **angularis** *Strd.* (= ab. 4 *Hmps.*). In this case also the spots behind the lower cell angle *angularis*. are yellow. All these forms occur on the Omei-shan and at Moupin. This species should be classified before **E. lectrix**. *lectrix*.

Alphabetical List

of the palaeartic Agaristidae mentioned, Index and reference of original descriptions.

angularis Eus. *Strd.* Lep. Cat. 5, p. 5 (1912).
antemedialis Eus. *Strd.* Lep. Cat. 5, p. 5 (1912)
cellularis Eus. *Strd.* Lep. Cat. 5, p. 5 (1912).

2. Family: **Noctuidae**.

1. Subfamily: **Acronyctinae**.

1. Genus: **Panthea** Hbn.

P. coenobita *Esp.* This species advances to the north as far as the Baltic Provinces, in E. Prussia it is *coenobita*. occasionally very frequent without however becoming a pest; it is common on Saghalin in the middle of July; towards the south it is found as far as N. Italy. — In ab. **latefasciata** *Rbl.* the black markings in the discal area *latefasciata*. become heavier forming a black discal band, whilst the basal and marginal areas continue to remain predominantly white. — ab. **immaculata** *Shelj.* is based on a ♀ found in Germany: it is without orbicular or reniform *immaculata*. stigmata which are apparently covered over by the transverse lines which are displaced. — In the Amur region this species occurs as a special subspecies: **ussuriensis** *Warn.* (= *kotschubeyi Shelj.*), it is much larger than the *ussuriensis*. european form, the black spots are somewhat diffuse and appear to stand on lighter ground. The white ground colour thereby becomes more prominent. This is a distinct form from Ussuri.

2. Genus: **Moma** Hbn.

M. ludifica *L.* The name type generally varies little and the species is therefore scarcely to be mistaken *ludifica*. for any other. — ab. **diffusipicta** *Strd.* is distinguished by the more diffuse markings of the forewings, hindwings *diffusipicta*. are quite suffused with black with the exception of the inner marginal area which retains the yellow. Probably the name is synonymous with — ab. **lugens** *Culot* (1 a), established from a specimen caught at Dresden. This *lugens*. probably represents the melanic extreme of this form of aberration. The type is found besides in mid-Europe, southwards to E. France, also in the Bretagne; northwards it is found as far as Reval.

M. champa *Moore* — v. **ainu** *Wilem.* differs by the more distinct posterior transverse line of forewings *ainu*. which forms an arc from the costa to beyond the middle of the wing and then proceeds obliquely to the inner margin; hindwings yellowish widely margined with blackish. Japan, Yesso, Kiushiu.

6. Genus: **Diphthera** Tr.

D. alpium *Osborne*. In the form — **designata** *Trti.* (1 a) from a specimen from Sestola, in the Apennines of *designata*. Modena, the black markings are absent in the discal area that usually traverse between the stigmata from costa to inner margin. — **glaucia** *Trti.* from Camaldoli is clearly a further stage in evolution, here the basal and sub- *glaucia*. marginal black markings are also absent; fringes are quite white, the green is restricted to 2 bands of spots, one median and the other antemarginal. In contrast to the *designata* form we have — **fasciata** *Lenz* (1 a) with *fasciata*. a coherent wide black middle band. It is described from Bavaria. The name type is found eastwards as far as Saghalin. In northern regions the larvae are found chiefly on birch, as for instance in Esthland.

7. Genus: **Colocasia** Hbn.

C. coryli *L.* A number of varieties have been described. — ab. **avellanae** *Huene* (1 a) is a uniform grey *avellanae*. form without any brown marking in basal area, this has often been observed and occurs from Esthland to S. Bavaria and the Tyrol. — **melanotica** *Haverkampff.* (= *weymeri* *Hold.*) (1 a) is a specimen that is uniform sooty *melanotica*. black over the body and wings, only the basal half of the wings being faintly darker. It is found in the industrial regions of the Rhine (Elberfeld and Barmen). — ab. **medionigra** *Vorbr.*: concurrently with the typical form, *medionigra*.

specimens occur at Dombresson having a dark black-brown discal area; they resemble *umbrosissima* which however is considerably larger and browner. — ab. **alba** Der. is a ♀ with grey-white instead of red-brown body and a similarly coloured basal area. On the other hand however it has a black-brown marginal spot on forewings; hindwings also are paler, fringes grey intersected with white. — ab. **wautersi** Dufrane is smaller by $\frac{1}{3}$ rd: the pale grey area between the postmedian and the fringes is red-brown, the discal area is sharply outlined with pale brown. Described from 3 specimens from the neighbourhood of Antwerp. — **betulae** Lenz is an aberration of the larva not of the imago. They were found in upper Pomerania on birch and it is to be presumed that this form will be occasionally found elsewhere; the larva is of violet-black colour having warts with white hairs and a white lateral row of spots; the lateral hair tufts on the 1st and on the 11th segments are black, the bristles on the 4th and 5th segments are rusty red. — The following local forms are established: — **uniformis** Trti. from Calabria with uniform brown ground colour in contrast to the uniform grey of *avellanae* or *mus*; only the outer edge of the reniform mark remains light. — **umbrosissima** Trti. is a much larger form from Sardinia; the dark outline of the brown basal area is more pronounced, forming a deep dark brown triangular discal band. It occurs in April in fairly high altitudes (Mte. Gennargentu) up to June. — subsp. **ussuriensis** Kard. differs distinctly from European forms by the anterior transverse line which is situated further from base, it has a narrower grey-black discal band which has no brownish yellow colour and there is a shadowy transverse band reaching to the reniform stigma; marginal area is paler than typical specimens, orbicular stigma with black spot, reniform stigma pale, hindwings and fringes unicoloured grey-brown. From Narva and Vladivostok in June. — ab. **grisescens** Kard.: occasionally among the same quite pale grey specimens occur with very fine transverse lines and reniform stigma without central dot and quite pale hindwings, which differ from the similar *mus* by the light basal area and the paler reniform stigma.

suzukii. **C. suzukii** Mats. (= *sugitanii* Mats. in tab.) (1 a) is very close to *coryli*. Frons, neck and palpi are black-brown, forewings dark grey with dark black-brown transverse lines, the anterior one almost straight only somewhat bent below the costa, discal line undulate bending out considerably from inner border of reniform stigma. The narrow posterior line is almost parallel to the discal line, all 3 expand at the costa; subterminal area dusky, the undulate marginal outer border black-brown, edged with whitish posteriorly, similarly a fine marginal line; the black-brown fringes are intersected by white at the extremities of the veins; the costal margin is white to beyond the small indistinct orbicular and the whitish reniform stigmata. Hindwings dark grey. Expanse 28 mm. Described from a ♂ from Honsho (Kyoto).

umbrosa. **C. umbrosa** Wilem. Forewings grey, the basal $\frac{2}{3}$ rd's dusted with brown, outer edge oblique; marginal area dusted with black-brown; the anterior irregular transverse line blackish, the posterior one undulate being bent round the end of cell; an undulate subterminal is indistinct, both stigmata circumscribed by black; hindwings blackish brown. Wing expanse 34 mm. Smaller than *mus* which it resembles, the posterior transverse line being of different formation. Japan.

8. Genus: **Oxycesta** Hbn.

serratae. **O. serratae** Zerny (= *geographica* var. *Zap. y Korb*, *chamaesyces* Chapm.) (1 a). Ground colour darker olive-brown than *geographica* and has more pointed transverse lines with deeper dentations and much darker grey hindwings especially in the ♀, whilst in the ♂ they have whitish patches at the inner margin and in the dentate postmedian. Considerably larger than *chamaesyces*, with wider wing contour and more varied pronounced markings and more distinctly checked fringes. The genitals of the 2 species are also different. It occurs in May and beginning of June in Aragon. The larvae feed together in June and July in open sunny spots on *Euphorbia serrata*.

9. Genus: **Eogena** Gn.

contaminella. **E. contaminella** Ev. — ab. **contaminella** Strd. from S. Russia has pale reddish hindwings, they are somewhat darker in marginal area but without brown colouration.

11. Genus: **Simyra** O.

moltrechti. **S. moltrechti** O. B.-H. (1 b) apparently closely resembles *büttneri*, the wing contour is somewhat shorter and wider, ground colour of forewings pale yellow, more whitish at base, sparsely and finely sprinkled with black. An outer transverse line is indicated by minute dots on the veins forming a wide arc around the end of cell. Hindwings grey traversed from base to margin by brownish longitudinal streaks. Wing expanse ♂ 26, ♀ 24 mm. From Sutschansk (S. Ussuri), captured in August.

autumna. **S. autumnna** Chrét. is classified behind *dentinosi*, which it resembles. Apex of forewings somewhat more rounded than in other species. Red-grey, veins black or blackish with traces of 2 transverse lines, these extend very obliquely to dorsal half of the wing and end at the inner margin in $\frac{1}{3}$ rd and $\frac{2}{3}$ rd's with 2 spots; in the

cell above the median nervure an interrupted red-brown streak; along the submedian a whitish longitudinal streak from base to beyond the first third of the wing; from the apex a white streak extends obliquely to the angle of the cell; there are white internerval streaks in the subterminal; fringes grey intersected with brown. Hindwings brown, base whitish, dark nervures and white fringes. Thorax pale grey, abdomen white. Wing expanse 33 mm. Gafsa (Tunis) in November. This species is unknown to me, according to the description it might be a *Cuculliane* something like *Metlaouia oberthüri*.

S. nervosa F. — ab. **rubrobrunnea** Strd. is a variety occurring probably everywhere in palaearctic territory having the white forewings more or less suffused with red-brown; also the hindwings are red-brown along the median and reddish-brown beyond the cell. — ab. **atrata** Belling has quite black forewings from base to beyond the middle, from there to the apex paler ochreous, veins lighter outlined with grey towards the margin contrasting with the dark ground. Hindwings deep grey. Bred from larvae from near Berlin. — subsp. **argentea** Splr. from the Altai is somewhat larger on the average and a purer white especially on hindwings. — **expressa** B.-Haas are specimens with a slightly more bluish grey-white colouration with a sharper and purer white or whitish-yellow basal streak and a similar mark from the disco-cellular nervure to the margin. Hindwings are black with pure white fringes. From Karagai-Tau and the Juldus region.

S. splendida Stgr. — ab. **albicilia** Strd. has the hindwings suffused with brown but with a white margin and similar fringes. Turkestan, Siberia, Corea, Thibet. This form is represented by the illustration in Vol. III, 2 e; we are illustrating the name type therefore in this volume (1 d).

S. sincera Warr. is pure white on forewings, veins outlined in very pale grey on both sides, sprinkled finely with black on the inner marginal half of the wing, more sparsely sprinkled in the upper half; a distinct black spot at the lower end of cell. Hindwings and fringes pure white. Underside white, forewings faintly tinged with grey. Body white, head and prothorax faintly tinted grey. Shaft of antennae white, pectinations rusty brown. According to a single ♂ from Baigacum (Syr Daria), caught in June.

12. Genus: **Arsilonche** Led.

A. albovenosa Goeze. — The name: **degener** Hbn. can no longer be considered synonymous and should be now utilised for the somewhat smaller autumn generation with very pronounced longitudinal streaks on forewings. — ab. **neomelaina** Traub is a melanic form. Head and dorsum black-brown. Forewings coffee-brown almost black, veins light grey, base of wings grey; hindwings grey-brown blackened towards the margin, abdomen black-brown. This may probably be described as a melanic form due to an industrial environment because a number of the form were bred from larvae which were obtained in the neighbourhood of Neustadt a. d. Hardt and the contaminated creeks in the surroundings. — ab. **tristis** B.-Haas is a darker form of ab. **centripuncta** with the grey-brownish ground colour of *S. nervosa* but darker and more unicoloured; it differs from the ab. *murina* Auriv. from Sweden and Finland in that the veins are not powdered with white. From S. Russia (Gov. Saratov). — subsp. **tanaica** Alph. is described as the more frequent form of *centripuncta* which is distinguishable by a dark brown longitudinal streak on the forewings which commences at the base and extends in the direction of the black discoidal spot, not rarely this expands widely which gives the insect a most pronounced character. It occurs in the entire district around the Sea of Azov. — subsp. **cretacea** Wagn. (1 b) is a recently described form from Anatolia with chalky white ground colour with minute dark scales distributed over the surface and with sharp black marginal spots. The longitudinal streaks contrast sharply from the dark ground colour. Hindwings and underside are also a purer white without the yellowish tone of the name form. — *albovenosa* is widely distributed in the East as far as Japan and Saghalin.

A. saepestriata Alph. is omitted by WARREN. It resembles *albovenosa* and especially the v. *murina saepestriata*. of same but it differs by the monotonous grey-brown hindwings. In *murina* the white veins on forewings stand out from the brown ground but in the present species on the other hand straight bronze-brown internerval stripes appear on a white ground. Described from a single ♀ of 34 mm wing expanse from Urga in northern Mongolia.

14. Genus: **Acronycta** Tr.

This genus requires to be brought up to date. At present we do not consider the separation of the *Chamaepora* Warr. as justified as it was based solely upon differences in the larvae and of the 60 known *Acronyctae* so far all in all only 12 of the larvae are known, so that it would be impossible at present to assert whether the remaining species belong to this or another genus.

On the other hand instead of *Chamaepora* we must introduce the old genus *Craniophora* Snell. which can be well separated from *Acronycta* and differs by a complete row of abdominal tufts, whilst *Acronycta* only has a basal tuft; the thorax in the latter is quite free of tufts whilst *Craniophora* has a separated tuft on the

metathorax. Besides this, veins 6 and 7 always have short stalks on the hindwings in *Acronycta* which is not the case in *Craniophora*. Great objection was taken to the alphabetical ordination in Vol. III which took no account of the relationship of the species to one another. As an exception we therefore have to alter the order and have chosen a new sequence. For this reason we are enumerating all the names again.

leporina. Type of the Genus: **A. leporina** L.

Sect. I. Thorax covered only with scales: (*Hyboma* L.)

hemileuca. **A. hemileuca** Püng. (1 b). To the insufficient definition it should be added that this species, which is closest to *strigosa*, is larger and with much darker and more regular reddish-grey coloured forewings; in one specimen the discal area is paler; ordination of markings agrees with *strigosa*, a pale spot at the inner angle. Hindwings pure white only somewhat darker dusted at the apex with interrupted dark marginal line. Underside similar to *strigosa*, hindwings whiter. Palpi more densely haired, body sleeker. The illustration in Vol. III is not recognisable.

phaedra. **A. phaedra** Hmps. (1 b) is also very close to *strigosa* but generally somewhat larger; forewings grey-white sprinkled with black, black basal streak expanding to cuneiform mark before the antemedian line and continuing beyond same; both upper stigmata yellowish-white with dark centres and circumscribed by black; the posterior transverse line is only double on the costa, bordered with white inwardly, the anal dart-shaped mark behind same very heavy and distinct, blackish dusting above and below same. Fringes black and white checked. White hindwings are tinged with brownish-grey, darker at margin and with black marginal spots. Described from the Ussuri district; Kasakewitseh and Sutshansk.

phaedriola. **A. phaedriola** n. sp. (1 c). From the same locality as the former, Sutshansk, occurring in June and therefore with no 2nd generation. Mr. O. BANG-HAAS has kindly sent me a species which is very close to *phaedra* but only half the size of same and which is immediately distinguishable by its very dark grey-brown hindwings with much more distinct and pronounced angular postmedian and very distinct discoidal lunule. Forewings narrower, apex more truncate, reminding one in this respect of the group of small *A. niveosparsa* and *omihsiensis*. Forewings similarly more darkly and densely sprinkled, the entire marking is much more diffuse and suffused whilst otherwise closely resembling that of *phaedra*. The space between the double transverse lines and the markings in the stigmata are not white as in *phaedra* but of the same colour as the ground. The basal streak is quite absent here whilst in *phaedra* it extends to the discal area even if diffusely and it more or less unites with the anal dart-shaped mark. Described from 2 ♂♂ ex the collection of O. B.-HAAS.

A. strigosa Schiff.

chingana. **A. chingana** n. sp. (1 c). A pretty species which is fairly close to *strigosa* but is very striking by the heavily developed tuft on the abdomen on the basal segment. Forewings grey-white in discal area and a darker dove grey especially in the basal half; in basal third of the submedian fold a lively ochreous and the same colour fills the stigmata and occurs beyond the postmedian; markings otherwise very similar to those of *strigosa* but the black longitudinal streak is absent in the discal area over the submedian nervure; the postmedian is simple and of the same shape as in *psi* etc. Hindwings of the ♂ white with finely interrupted marginal line, very faint discal lunule and traces of a darker postmedian line; in the ♀ which is darker grey and more heavily marked, the hindwings are somewhat darker grey-brown, a narrow whitish border before the marginal line. Described from a pair kindly supplied by Mr. O. BANG-HAAS. ♂ type from Inn-Shan. ♀ from Lin si hien. Chingan Mountains in eastern Mongolia.

jankowskii. **A. jankowskii** Obth. (1 c). The illustration in Vol. III leaves an incorrect impression of this small species, for the outstanding white spot at the end of the basal streak is especially characteristic.

cubitata. **A. cubitata** Warr. I have no specimen of this before me. Forewings pale grey mixed with darker and shaded more darkly behind the outer line. A thick dark middle line forming an angle within the reniform stigma so that same is obscured; sub-basal line indicated by 2 streaks at costa, the double inner transverse line, elbowed inwards on the 2 folds and touches the thick black basal streak; the pale grey round orbicular stigma has a dark centre and is circumscribed by black. The blackish reniform stigma is circumscribed by black. The outer transverse line is almost vertical between the subcostal and uppermedian nervures, then bends inwards at a right angle below the reniform stigma, it is white and heavily bordered outwardly with black; the indistinct submarginal line is indicated by black cuneiform marks. Fringes black and grey. Hindwings impure white with yellow-grey cell spot, outer line and marginal band. Wing expanse ♂ 32, ♀ 34 mm. From Chabarowsk (Ussuri); Pompejefka (in the smaller Chingan).

A. carbonaria Graes. (= *brumosa* Leech).

suigensis. **A. suigensis** Mats. (1 c) is classified between the *carbonaria* and the following *catocaloida*, from which latter it differs however by the absence of the black discoidal lunule on the yellow hindwing. Forewings very similarly

coloured and marked as in *rumicis* and *carbonaria*, brownish grey-black sprinkled with black; orbicular stigma larger than in *rumicis* with darker centre and below beyond same a light spot. Hindwings ochreous with wide black-brown marginal band with light marginal spot before the anal angle. Corea.

A. niveosparsa Mats. (1 d) is a very small species reminding one of certain *Erastris* species. Forewings *niveosparsa*, dark brown, sprinkled with white and black, all transverse lines fairly suffused or obscured, only indicated by small spots; orbicular stigma white with grey-brown centre, outlined in black on both sides, indistinct reniform stigma dark grey with black and white markings, space between the two stigmata darkened; marginal area white sprinkled with small black spots; a white longish spot on costa anterior to orbicular stigma. Hindwings grey, veins darker, head white. Honsho (Kyoto), also mentioned by DRAESEKE as from Szechuan.

A. omihsiensis Draes. (1 d) resembles *niveosparsa* in outline, but is $\frac{1}{3}$ rd larger. Forewings whitish *omihsiensis*, grey, subbasal line only distinct at costa: both transverse lines whitish bordered with black on both sides, most distinct on folds; both transverse lines are conjoined in the submedian by a fine curved line; the large round orbicular stigma is whitish bordered with grey on basal side and with grey centre, the indistinct reniform stigma similarly; the whitish fringes are checked with black between the veins. Hindwings grey-brown with faint broad median band and pale yellowish fringes. Omih sien (Province Szechuan).

A. subornata Leech. — **brunnea** Hmps. forewings are browner and less grey. The illustration in Vol. III, *brunnea*, pl. 3 f is a very bad copy according to LEECH and quite unrecognisable. The species closely resembles *rumicis* on forewings. Unfortunately we have not been able to obtain a suitable type for a better illustration.

A. pruinosa Guén.

A. consanguis Btlr.

A. jozana Mats. (1 d) somewhat resembles *consanguinis* and also *phaedriola*, differing from same by *jozana*, the more brownish ground colour. Forewings grey-white, marbled with black and brownish; 10 small black spots on costa; the small round orbicular stigma has a suffused dark centre and is circumscribed with black, the large reniform stigma has dark grey centre and is circumscribed with brown-black; below the median nervure a long basal streak, both transverse lines double with whitish between, anal dart-shaped mark narrow. The illustration from MATSUMURA shows both longitudinal streaks conjoined in discal area by black at submedian nervure as in *strigosa*. Hindwings pale brown-grey, darker at margin with extinct postmedian and white fringes. Hokkaido (Japan). June and August.

A. albistigma Hmps. (1 d) is a very large species from Japan with forewings sprinkled with grey-brown *albistigma*, and brightly contrasting white orbicular stigma of somewhat oblique elliptical form; the grey reniform stigma is outlined with black at sides and marked with white spots, the double postmedian is filled with white between subcostal and upper median and lower median and submedian nervures, the undulate subterminal is white. Hindwings light brownish yellow, veins and marginal area brown with indistinct curved postmedian.

A. rumicis L. — ab. **marginata** Lambill. corresponds to the *virgata* forms with dark marginal area. — *marginata*, **meridionalis** Dannehl (1 d) from the S. Tyrol are more brightly marked summer forms with ochreous tone on *meridio-* hindwings. — **suhriana** Gillm. closely resembles *marginata*, but basal area is also adumbrated, discal area on *meridio-* the other hand remaining light. — **polonica** Prüffer is not grey-black, but uniform dark brown with black *polonica*, shading without the inner marginal white spot. Hindwings dark brown like the forewings with wider marginal band. The following is probably synonymous: — **prüfferi** Masl. with darker upperside of forewings without *prüfferi*, the inner marginal white spot. — subsp. **oriens** Strd. (1 d) from Japan and W. China is much larger and darker *oriens*, than the european name type, whilst the northern african form: — **pallida** Rothsch. (1 d) is pronouncedly *pallida*, paler, but not as light as the central asiatic — **turanica** Stgr. (1 e) of which we are illustrating a cotype of *turanica*, STAUDINGER ex the collection of PÜNGELER. According to OBERTHÜR the race from Tunis is said to be somewhat darker again than mid-european specimens with less brownish being purer grey with spots and markings on paler ground. As against what has just been said under *oriens* OBERTHÜR says that specimens from Ta-tsien-lu are still paler and more whitish; according to this matters are not very clear: unfortunately I have no specimens of this pale nature from W. China at my disposal.

A. lutea Brem. & Grey — ab. **aurantior** Strd. has deeper orange yellow hindwings. — **leucoptera** Btlr. is *aurantior*, not a separate species according to HAMPSON, but only a form of *lutea* having more whitish hindwings with *leucoptera*, only faintly yellowish tone. Both forms occur in east Asia.

A. catocaloida Graes.

Sect. II. Thorax covered with hairs and with hair-like scales. (Triaena Hbn.).

A. psi L. To facilitate distinction between the 3 species *psi*, *tridens* and *cuspidis* that are so similar, I *psi*, quote here, what PETERSEN so pertinently says in his Fauna of Esthland: "These 3 species are very easy to differentiate according to their larvae, whilst sometimes this is difficult with the imago. According to HEINE-

- MANN the ground colour is the only distinguishing characteristic. In *tridens* it is reddish grey, in *psi* bluish grey and in *cuspsis* grey-white. However it is very difficult to decide according to a single specimen and especially *tridens* and *psi* are difficult to classify. *cuspsis* has the most pronounced markings and always dark hindwings, whilst in *tridens* ♂ they are pure white and in *psi* ♂ white with darkened veins towards the margin; in *psi* ♀ they are faintly dusted with grey. Further as TREITSCHKE has laid down, *cuspsis* often has the orbicular stigma circumscribed by a closed black ringlet, whilst in the other species it is almost always open towards the base. The 3 species are easily distinguishable according to the formation of the valves. Further in *psi* the dart-shaped mark above the anal angle is nearly always intersected by a small streak which in its course extends into the fringes, whilst in *tridens* these two merge forming more or less one streak; the latter is almost always of narrower wing formation. — *suffusa* Tull is a very dark aberration; in the type the marginal area is especially dark, analogous to the *bivirga* form and also the basal area is somewhat adumbrated. — subsp. *batnana*. **batnana** n. (1 e) shows very distinct differences when compared with large series of european *psi*. The general impression is darker, especially of hindwings; the outer transverse band is uniformly thick throughout its course, whilst in *psi* it becomes faint between lower and upper median nervures; basal and anal dart-shaped marks are double as thick as in name form, the anterior striga is distinctly double. Algeria; Batna (Types in *iliensis*. the collection of DRAUDT), Sidi bel Abbes, Messer, Ain Fazza. May to September. — subsp. **iliensis** n. (1 e) specimens from central Asia are very large, both transverse lines are very distinctly double, especially the posterior one is distinctly more dentate and strikingly brown instead of being black, further it is not so sharply marked but more diffuse. Ili territory, Types in the PÜNGELER collection in the Berlin Museum.
- tridens*. **A. tridens** Schiff. see *psi* in regard to the differences. SPULER names a form without the anal dart-shaped mark: — **asignata** from a specimen from Carlsruhe. — **variegata** Strd. (= ab. 1 *Hmps.*) from England has forewings more admixed with white, hindwings of ♂ are white, veins tinged with brown towards margin. — *radoti*. subsp. **radoti** Le Cerf from Morocco is a more uniform and darker grey without light patches, only the orbicular stigma is lighter and more rounded, both transverse lines contiguous, of uniform width and with blunt scarcely perceptible dentations; the wide and long dart-shaped marks intersect the lines, the postmedian one is not shaded outwardly with brown. Hindwings scarcely darker than type. We illustrate a good specimen of *virga* Tull (1 f).
- incretata*. **A. incretata** Hmps. (= *incretata* Btlr. nec *Morris*, *intermedia* Warr.) (1 f) is a large species being very similar to the two previous and differing from same by the more unicoloured mauve-brown suffused forewing; the orbicular stigma is open at top and obliquely elliptical. A black curved streak extends from same to reniform stigma; hindwings of ♂ white, veins and margin brownish, of ♀ dusted all over with brown and indistinct postmedian. Japan, Corea, W. China. Specimens from Saghalin are much smaller than those from central Japan. The name given by HAMPSON must be upheld, as it was published in March 1909, whilst WARREN's name was not given until May of the same year.
- decyanea*. **A. cuspsis** Hbn. — ab. **decyanea** Strd. (= ab. 1 *Hmps.*) forewings dusted with faint brownish without bluish tone. — **obscurior** Strd. (= ab. 2 *Hmps.*) has forewings almost completely dusted with black-brown. *suffusa*. Transitions are named: — **suffusa** Spul. with smoky grey forewings and **caliginosa** Schultz with smoky brownish *caliginosa*. forewings. Actually *suffusa* as well as *decyanea* are the same as *caliginosa*, which should have a preference in nomenclature, as it is the oldest name; there is no scientific value in such fine differences. Such specimens are occasionally met with throughout Germany and Austria. — Specimens from Belgium are generally somewhat darker grey, more suffused, submedian with distinct yellowish green longitudinal streaks through and behind the cell, prothorax very often not intersected with black longitudinally, although among *suffusa* forms specimens do occur with black prothorax streak. The form, which is paler than the genuine *suffusa* is characteristic and deserves a separate name from the mid-german specimens: — **belgica** f. n. (1 f). — **rosea** Trti. named from a *belgica*. specimen from Sardinia has forewings with a sort of rose-red sheen, the black dart-shaped marks are boldly *rosea*. marked, both stigmata conjoined by a thicker black streak.
- leucocuspis*. **A. leucocuspis** Btlr. (1 f) should be removed from the *cuspsis* forms and separated as a genuine species, differing by the small round white orbicular stigma. — **brunnior** Strd. (= ab. 1 *Hmps.*) according to a ♂ with *brunnior*. forewings suffused with black-brown and hindwings dusted with brown.
- jezoensis*. **A. jezoensis** Mats. somewhat resembles *cuspsis* but differs from same by the completely white hindwings. Forewings light grey with black markings; basal streak below the median nervure wide with a small mark branching off upwards and 2 downwards; both stigmata obscured, orbicular stigma with dark border outwardly, reniform stigma with dark border towards base; postmedian lined with white inwardly, intersected by the anal dart-shaped mark; outer margin somewhat darker grey, small black spot marking between the extremities of veins, fringes white and checked with white. Hindwings white with black spots along the margin. From Hokkaido and S. Saghalin in July and August.
- subpurpurea*. **A. subpurpurea** Mats. closely resembles *incretata* and differs by the deeper red-brown forewings and the much wider and longer basal streak; both transverse lines are obscured and only clearly visible above the median nervure; the pale grey submarginal edged outwardly with black is relatively close to the margin, marginal area behind same somewhat darker. Hindwings pale grey with dark cell spot, postmedian and wider marginal adumbration with light fringes. Described from 2 ♂♂ from Sapporo, Hokkaido, Japan.

A. sapporensis Mats. from the same locality also closely resembles *cuspsis*, differs however from same *sapporensis* by the completely silvery white hindwings of ♂; forewings pale grey with heavier black markings; basal dart-shaped mark forked at end and with white edge outwardly below median nervure; both stigmata white, reniform large, brownish in centre with black outline inwardly, both conjoined by a black streak; the posterior transverse line quite extinct only indicated by 2 black marks on costa; the white subterminal line widely bordered outwardly by a black-brown band; the anal dart-shaped mark with white border on lower edge, white fringes with dark checks. Hindwings of ♀ more inclined to grey-white with narrower dark postmedian and some marginal dusting. Expanse of wings ♂ 37 mm, ♀ 41 mm. Sapporo in June and September.

A. orientalis Mann related to *cuspsis*, somewhat smaller on an average; ground colour is more whitish *orientalis* and more coarsely dusted with black; markings very similar to species named but the anal dart-shaped mark much finer and thinner. Pontus, Bithynia and Lydia. — subsp. **galvagnii** Schaw. (1 g) has ground colour of *galvagnii* deeper grey-black shade with boldly pronounced dentate lines of deep black colour. Herzegovina (Mostar).

A. hercules Fldr. (1 g). We are giving a better illustration, the hindwings in the figure on plate 2 k *hercules* were too dark.

A. taurica Stgr. (1 g) should be separated from *cuspsis*. It is certainly a genuine species, reminding one *taurica* more of a small *aceris*; it has quite white hindwings with faint shading only in subapical area. Veins finely dark in marginal area. Forewings without the black streak between orbicular and reniform stigmata, the anal dart-shaped mark is delicate and does not extend to margin. Occurs at Lebanon in Syria besides in Asia Minor (Taurus, Hadjin, Zeitun).

A. aceris L. — *candelisequa* is a more lead grey form, whilst **infuscata** Haw. is more suffused with olive- *infuscata* brownish. PETERSEN mentions in his Fauna of Esthland a completely sooty black specimen, which seems to go beyond *infuscata*. — **assignata** Hirschke from a single specimen from Enzersdorf near Vienna is quite without *assignata* markings on upperside, hindwings also without curved line. — In **elineata** Dufrane the black subanal streak *elineata* is missing, the customary markings are more delicate than in normal specimens, the wings finely sprinkled with black. Described from Belgium. — subsp. **judaea** Stgr. (1 g) we illustrate a fine specimen from Palestine *judaea* ex the PÜNGELER Collection. — **calceata** Dannehl (1 g) differs little from same, it has perhaps slightly more *calceata* blackish dusting in inner marginal area and a slight yellow-grey tinge behind the postmedian; hindwings also slightly whiter. From the central Apennines.

A. major Brem. — **anaedina** Btlr. is not purely synonymous, but designates darker forms, especially on *anaedina* hindwings, from Hondo and W. China. — **anaedinella** Strd. (= ab. 2 Hmps.) with extinct basal and postmedian *anaedinella* markings. From central and W. China. Probably this name is synonymous with *defigurata* Warr.

A. alni L. — ab. **nigromaculata** Gelin has a more or less widely blackened marginal area on hindwings *nigro-maculata* and represents a variety that apparently occurs relatively frequently in W. France. — ab. **cothina** Dannehl (1 e) *cothina* from Drautal and Klagenfurt is heavily suffused with rose. From series of these specimens it would appear that 5% of the dark rosy specimens have very heavy black marking and orbicular stigma is always missing. The rose colour however soon fades in the collection and turns to reddish yellow.

A. auricoma F. — The somewhat smaller and paler Spring form is separated as — **vernalis** Frings; it is *auricoma* the commoner form that occurs from April to June, whilst the summer generation is only a partial brood in July *vernalis* and August. — **pepli** Hbn. (1 h) is a dark, small and single brooded form from the North and the Alps. The *pepli* larva of this latter form seems to have a constant variation from that of *auricoma* as the warts are white instead of being red.

A. schwingenschussi Zerny (1 h) is very close to *auricoma* and the arrangement of the markings is the *schwingenschussi* same. The ground colour however is a pure iron-grey with faint violet tinge; transverse lines and stigmata distinct and deep black; the black longitudinal streak extends from the basal edge of reniform stigma to the margin, the black central dot is absent from the longish orbicular stigma. Hindwings pure white with veins darkened towards the margin. It is less coarsely scaled than the somewhat similar *euphorbiae*. It occurs in June in Aragon and Andalusia.

A. pulverosa Hmps. (= *pruinosa* Leech nec Guén.) (1 h) is also like *auricoma*; it is more besprinkled *pulverosa* with brown, the antemedian transverse line is less distinct, the white orbicular stigma is obliquely quadrate and not round; the posterior transverse line is distinctly double, especially at costa. The marginal area is very dark on the dusky hindwings and an indistinct postmedian is present. — **fuscossuffusa** Strd. (= ab. 1 Hmps.) has *fuscossuffusa* forewings more heavily suffused with black-brown. Japan, N. China. — subsp. **sachalinensis** Mats. has a more *sachalinensis* slender and smaller body; wings much paler, only a quadrate mark between the stigmata which is distinct and darker; a further paler spot between postmedian and reniform stigma, so that the inner part of the postmedian diffuses here; hindwings pale grey with dark discal spot and submarginal band. Wing expanse 28 mm. From S. Saghalin in July. Possibly a genuine species.

- menyanthidis.* **A. menyanthidis** View. is larger and has wider wings than *auricoma* and has no subterminal line, the elbowed line is double always widely filled with white at inner margin. According to PETERSEN these are the characteristics at least for the main type form; on the other hand it is very difficult to distinguish certain specimens of the variety *suffusa* from *pepli*, as *pepli* (at least as far as concerns specimens from northern localities) also has a very indistinct subterminal line; only the valves of the ♂ show considerable differences. —
- arduenna.* *scotica* occurs as an aberration also in N. Germany and Switzerland. — **arduenna** Gillmer from the Ardennes is more yellowish grey with heavily black brown discal area, the yellowish white inner border of the postmedian is distinctly retained; fringes finely intersected by black. Hindwings yellowish grey; darker in ♀. — ab.
- sartorii.* **sartorii** Hockemeyer in contrast hereto has the entire marginal area and sometimes also the basal area darkened, discal area remains light. — ab. **jaeschkei** Kujau is based on a specimen from around Hamburg with very light blue-grey colouration of forewings with sharply outlined black markings and wide black marginal band on hindwings. — ab. **nigra** Schäfer is an extreme form of *suffusa*, a strongly melanic specimen with grey-black hindwings, on forewings only a feeble indication of a slightly paler subterminal band. Also from near Hamburg. DUFRANE enumerates the food plants of the larvae as: Crataegus. Tussilago (!). Aconitum and broom.
- metaxantha.* **A. metaxantha** Hmps. (1 h) looks on forewings like an *aceris* that is heavily suffused with red-brown, but the hindwings are reddish yellow, paler in disc and with brown interrupted marginal band. The anal dart-shaped mark is absent on forewings, the posterior transverse line is heavily dentate. — ab. **metaxanthodes** Strd. (= ab. 1 Hmps.) has hindwings suffused with brown, marginal band less intersected, whilst in — **metaxanthella** Strd. (= ab. 2 Hmps.) it is brownish white. W. China as far as Ta-t sien-lu.
- metaxanthodes.* **A. nigricans** Leech.
- metaxanthella.* **A. digna** Btlr.
- raphael.* **A. raphael** Obth. (= *raphaelis* Hmps., *fixsemi* Graes.). Here the postmedian line is quite without dentations, double and filled with whitish.
- centralis.* **A. centralis** Ersch. (1 h) very close to *megacephala*, but a much paler species, only the postmedian area is darker, whilst otherwise the surface is grey-white coarsely sprinkled with black-brown. The subbasal line is quite absent, the postmedian line crosses on the submedian fold a dark dart-shaped mark that extends to the margin; the subterminal line is only indicated by a contrast in shade between the postmedian and marginal areas. Hindwings white with brownish veins at margin and brownish checked fringes. — **persica** Strd. (= ab. 1 Hmps.) from northern Persia has more distinct double transverse lines of which the posterior one is filled with whitish, the anal sagittate mark is absent. Persia to Turkestan (Ferghana, Sarafshan).
- persica.* **A. megacephala** Schiff. Specimens from Uralsk and Sarepta and Asia Minor (Konia) are extraordinarily pale, quite like a pale *aceris* and probably correspond to — **albidior** Wagn. described from the Udine. — ab.
- schlumbergeri.* **pulla** Strd. described from Norway is suffused with black-brown on body and wings, only the area of the orbicular stigma remains white. A melanic form that probably also occurs elsewhere and which may be deemed a transition to *nigra*. — **nigra** Shaw. (= *aethiopa* Krul.) (1 i) is the extreme form of the above from Moscow and Wiatka. It is a form completely suffused with black with traces of light markings and an occasionally more prominent white postmedian line than is shown in the illustration, thorax black and abdomen dark. — ab.
- sehtum-bergeri.* **schlumbergeri** Schultz is established from a pathologically varying specimen from Silesia. Markings are diffuse and subterminal line is closely approximated to margin, the area anterior to same being very wide and pale. Hindwings whitish with a faintly dentate dark antemarginal line immediately before margin. — **warpachowskii** Krul. (1 h as *albidior*) has forewings more grey-white with delicate black, partially disrupted markings, the light patch behind the reniform stigma almost quite white; the discal area sometimes lighter than the rest of wing surface, only inner marginal area darker, the transverse lines more distinct on the pale ground. E. Russia; probably the form is identical with *albidior* and could then claim priority.
- tienu.* **A. tienu** Püng. (1 i) is a large dark species, closely resembling dark specimens of *megacephala*, but apparently still more closely related to *euphorbiae*. Larger than the latter, forewings wider, darker and more brownish, underside suffused with black, only marginal area and costa pale brownish grey, markings of forewing indistinct similar to *euphorbiae*. Alexander Mountains, Ili territory, W. China (Moupin).
- euphorbiae.* **A. euphorbiae** Schiff. The type form, occurring northwards to the southern part of the Baltic Provinces, is always more smoky grey, the northern and alpine form — *montivaga* is more blue-grey; the latter is generally somewhat larger. According to HAMPSON the much older name: — **obscura** Ström. should be utilised for the latter form. — ab. **parisiensis** Cudot is a specimen darkly suffused with smoky black in which only the transverse lines retain a somewhat lighter shade and which is analogous with ab. *melaleuca* of *leporina*. — **myricae** Guén. (1 i) is very close to *obscura-montivaga* and is a very dark blue-grey form with diffuse markings and especially dark hindwings. It occurs in Scotland and Ireland and is also mentioned from the Tarbagatai. — **euphrasiae** Brahm had best be classified to *euphorbiae* as the more southern subspecies. It differs by a constantly smaller

size and always has a somewhat more yellowish tone and is generally paler. — ab. **debilis** *Demaïson* is an *debilis*, especially pale *euphrasiae* with very obscure markings, only the outlines of the orbicular and reniform stigmata are sharply marked in black. From Rheims. — ab. **esulae** *Hbn.* is a somewhat darker, more brownish form *esulae*, belonging thereto, always having a similar yellowish tone. *abscondita* *Tr.* which is synonymous should be eliminated. It was given to *euphrasiae* from S. Germany (Wiesbaden, Taunus), S. France, S. Italy and Dalmatia. — **xanthomista** *n. f.* (1 i) denominates a single specimen of unknown origin in the Dresden Museum *xanthomista*, showing yellow-red scales on the transverse lines in the grey-blue ground colour, its orbicular stigma is only a dot. — **ottomana** *f. n.* (1 i) are extraordinarily pale grey, finely marked specimens from Constantinople in the *ottomana*, PÜNGELER Collection. Very close to same are also very pale, more inclined to grey-blue specimens which form a constant local form in the Abruzzi mountains: — **apennina** *f. n.* they are delicately and yet distinctly marked. *apennina*. — **korlana** *f. n.* (1 i) is possibly a genuine species; it is small, slender, margin oblique, ground colour coarsely *korlana*, sprinkled with black; from Korla, type in the PÜNGELER Collection.

A. abscondita *Tr.* (= *euphorbiae* *H.-Schäff.*) (1 k) is certainly a genuine species, smaller, somewhat *abscondita*, darker, markings rather more diffuse, the elbowed line scarcely dentate. The species closely resembles certain *myricae*, but always has a wider and more truncate wing contour and more glossy scaling. The larva is constant and varies from *euphorbiae* by the absence of the red oblique band on the 2nd segment. It feeds on heather. N. Germany, Lapland, Russia. — ab. **fasciata** *Hannemann* based on a specimen from Berlin has a black discal *fasciata*, band on forewings. — subsp. **glaucoptera** *Petersen* (1 k) from Esthland appears to be a constant form there; *glaucoptera*, smaller, dark blue-grey with scarcely distinguishable stigmata, hindwings and abdomen blackish grey, strikingly darker than in german specimens of *abscondita*.

A. leporina *L.* The expansion of the black markings varies in typical forms. In ab. **bimacula** *Maass.* *leporina*, (1 k) there are only 2 black spots, one above the other, in place of the reniform stigma, in ab. **alba** *Gillm.* wings *bimacula*, are uniform white without markings. — **bradyporina** *Tr.* according to the researches of GILLMER is the english *alba*, form that is dusted with black, with darker marginal area, and should be classified with *semivirga*. — *leporella* *porina*, on the other hand is not sprinkled with black, but uniformly dusted with grey. — ab. **melanocephala** *Mansbr.* *melanocephala*, (1 k) is a *bradyporina* with heavier black markings and entirely black head and thorax; from Warrington in England. — subsp. **leucogaea** *Stich.* is similar to *semivirga*, but only the outer part of margin is grey; in this *leucogaea*, form the basal area is also grey, the discal area whiter, both transverse lines, especially the posterior one very sharply marked and continuous, dart-shaped marks retrogressive. Based on a bred specimen from Schwerin. — subsp. (et ab.) **grisea** *Cochrane* from England, as an aberration also from N. Germany and Denmark, is a *grisea*, *bradyporina* without dark marginal area, with bold markings, which can even closely resemble a pale *psi*, differs from same however by the absence of the orbicular stigma and the very delicate basal streak. — ab. **melaleuca** *melaleuca*, *Culot* (1 k) is an extremely melanic form, uniform dark grey-black, only the outlines of the two transverse lines remain light. From a specimen from Osnabrück. — The species is found as far south as Bilbao in Spain and N. Italy, eastwards in the form *leporella* as far as Saghalin.

A. senica *Ev.* (? = *literata* *Brem.*). I have not obtained any fresh information in regard to these species *senica*, including the ab. **x-signata** *Stgr.* that possibly belongs thereto. In appearance they remind one more of a *x-signata*, *Graptolitha* (*Lithophane*) in the relationship of *lamda* and do not show any resemblance to any other *Acronycta*: *senica* has in fact already been classified by its author to *Xylina*.

A. omorii *Mats.* is compared by its author to *literata* *Brem.* I cannot see any resemblance from the *omorii*, illustration and would therefore more readily classify same near to *strigosa*. Forewings grey-blue with somewhat blackish markings: the short basal longitudinal streak is conjoined with the double antemedian, which bends in a sharp angle below the median nervure; the oval grey-white orbicular stigma has a black border on each side, the large grey reniform stigma is somewhat darkened in the centre; the postmedian is only visible between the costa and median nervure; subterminal line somewhat curved outwards, dentate on lower and upper median nervures, a fine anal streak on the submedian fold extending to margin; anterior to margin traces of a light undulate line; fringes white with fine dark intermediary line. Hindwings glossy white with fine black-brown marginal line. Wing expanse 34—37 mm. Hokkaido and Honsho in the middle of June.

15. Genus: **Craniophora** *Snell.*

In regard to the differences with *Acronycta* compare what was said on p. 7 in regard to this Genus.

Type of the Genus: *C. ligustri* *Schiff.*

C. fasciata *Moore* (= *nigrostriata* *Pag.*) and — ab. *divisa* *Moore*.

C. pontica *Stgr.* (1 l) of which we are again illustrating a specimen from N. Persia ex the PÜNGELER *pontica*, Collection. It also occurs commonly in Mauretania and the specimens are very large and dark — especially frequent in Tunis — suffused with rose, as often occurs in *Acronycta* species in the South. It has been observed from May to October and astonishing to relate has been advised as occurring also at Herkulesbad in Hungary.

pacifica. **C. pacifica** *Filipiev* (1 l) is unusually close to *pontica*, differs however in the genitals. According to its author it can be distinguished from *pontica* in that the light area between the inner line and the central shade, which encloses the orbicular stigma, runs less obliquely to the inner margin, the reniform stigma is greyer and not so distinct as in *pontica*, apex of wings remains lighter; there is a distinct white streak in the subanal area, which is absent in *pontica* or only faintly indicated. Hindwings are more heavily darkened at the margin and are quite brown in the ♀. The last segment of the palpi is somewhat longer and the legs are darker. Sutshan district, Sidemi; we are able to illustrate a pair from Amur ex the PÜNGELER Collection. — **kalgana** *f. n.* (1 l) Mr. O. BANG-HAAS has kindly placed at my disposal a specimen from Kalgan (in the Province of Chihli) with a more chocolate brown colour and which besides has a more glossy scaling and clearer finer markings with a less dentate postmedian line.

albonigra. **C. albonigra** *Herz.* held by many authors to be synonymous with *pacifica*, is said to be considerably smaller than same, the inner line lying closer to base, the orbicular stigma scarcely perceptible, hindwings uniformly brown. Amur; W. China.

C. praeclara *Graes.*

obscura. *C. ligustri* *Schiff.* — ab. **obscura** *Mellaerts* from Belgium closely resembles *sundevalli*, has quite black wings with greenish markings, hindwings similarly blackish. — ab. **troni** *Huene* has paler whitish ground colour in place of olive green with rose coloured and faintly greenish sheen; seems to occur fairly frequently in Esthland. The larvae feed there on young oak trees. A form that predominates in the S. Tyrol, which seems to me to be close to *troni* is named **effusior** *Dannehl* (1 l) a type of which we can illustrate thanks to the author in the same way as the following two: it appears much brighter owing to an increase in the white which is admixed with rose and green hues transforming the black markings into light grey and grey olive. — ab. **roseoradiata** *Dannehl* (1 l) is a form in which the rose coloured interspersions form 3 rosy brown or violet longitudinal rays from base to margin; this is a rare form from the S. Tyrol. — **viburni** *Dannehl* (1 l) is the opposite extreme, uniformly mouse-grey with a very narrow darker transverse band; the large whitish spot in the outer area scarcely lighter than ground colour. Fairly common among the summer form in S. Tyrol and apparently very similar to *sundevalli*.

C. obscura *Leech.*

16. Genus: **Thalata** *Wkr.*

This genus, which includes one african and several indo-australian forms, is closely related to *Acronycta* but differs chiefly by the presence of a small horny projection on the clypeus with raised edge. Only one species touches palaearctic territory:

sinens. **Th. sinens** *Wkr.* The small grey-white species was classified in Vol. III under *Acronycta*, but actually belongs here. It reaches palaearctic territory in W. China and is described more fully in Vol. XI, p. 36 and well illustrated there on pl. 5 d.

2. Sub-family: **Bryophilinae** (for *Metachrostinae*).

We are utilising the old name: *Bryophila* instead of *Metachrostis*, because TREITSCHKE described it 2 years previously to when HÜBNER established his *Metachrostis* and WARREN has meanwhile altered his classification in the indo-australian part accordingly.

19. Genus: **Bryophila** *Tr.*

pineti. **B. pineti** *Stgr.* (2 a) cannot be recognised by the illustration in Vol. III. This species reminds one most readily of the Geometridae *Pachyn. hippocastanaria* in colour and markings but it has wider wings. This very rare species was hitherto only known from a few specimens from Andalusia, Castile and according to KORB from a single specimen from Aragon (Teruel) but has lately been found in a special form: — **boursini** *Cleu* also in the Htes Alpes. In these the forewings are grey, dusted with black without stigmata and the yellowish spot at close of cell; transverse lines are only indicated by spots on costa: a median suffused shadow stripe is very distinct, the elbowed line is more distinct, whitish, bordered with black outwardly, subterminal line radially dentate on veins. Hindwings dusky grey. Captured in July.

B. albonotata *Stgr.* belongs to the Genus *Chytonix* (compare there).

petraea. **B. petraea** *Guén.* (2 a) has meanwhile been frequently captured in Spain and Manretania (Batna, Guelt es Stel, El Kantara, Maafa, Lambessa) in September. It is a very variable species: pale grey, almost without

markings, a bright grey with heavy black markings, some such a dark grey that the markings can scarcely be discerned; sometimes, as in the specimen illustrated, a black-brown broad discal band is created: — **transversa** *f. nov.* (2 a). — **contristans** *Led.* (2 a) is the eastern form which also is very variable; it occurs as well in forms with darkened red brown discal area — **mediobrunnescens** *Strd.* corresponding to *provincialis* *Culot.* Also with bold black longitudinal streak submedian from base to elbowed line and indistinctly beyond same like in *striata* of *raptricula*: — **ramosana** *f. nov.* (2 a). The species is always easily recognisable by the coppery reddish hue of hindwings. *contristans* is found in Kurdistan and Syria, besides in Greece and Asia Minor. — **hoerhammeri** *Schaw.* (2 a) recently described from Corsica makes a different impression. Somewhat larger, the grey-brown of forewings darker, less scaled with brown so that the white submarginal lines are suffused by white, only the small black dart-shaped marks and the white anal spot remaining; the two middle transverse bands bold, the area between being subdivided by a broad black transverse band; the basal dart-shaped mark is absent, the brownish scaled stigmata circumscribed by black. Hindwings darker outwardly, margin blackish almost to the middle. Corsica (Evisa).

B. divisa *Esp.* (= *pomula* *Bkh.*, *raptricula* *Hbn.*) like most of the *Bryophila* is subject to the most astonishing variations. The name *divisa* denominates the more northern forms which are always darker, more black-brown. — **oxybiensis** *Mill.* (2 b) is the somewhat smaller and greyer southern form which occurs in the Provence, Spain, Sicily, Turkey as far as Turkestan. Specimens from Palestine and further east through Persia to Aksu and the Thian Shan are considerably more grey: — **palaestina** *Strd.* (2 b) from Jerusalem is grey-white on forewings, finely striped with black on the veins. — **deceptricula** *Hbn.* denotes darker specimens with rich fuscous or fulvous admixture. Small specimens of this from S. France, Spain and Algiers are: — **provincialis** *Culot*; here the basal area and inner margin of forewing are violet grey, the discal area of costa black-brown, the outer half of cell and beyond red-brown as far as the margin. Mauretania, June August. — **persica** *Strd.* (2 b) denotes quite similar specimens, which are larger and paler grey-white originating from Persia, the Urals, but also occurring in Hungary and Croatia as far as Irkutsk. It should be stated that spanish *oxybiensis* very often have this yellow-red longitudinal streak from base to margin. ROTHSCHILD denominates unicoloured grey specimens as ab. **unicolor** (= *grisea* *Dannehl*) (2 b). Specimens of *oxybiensis* approaching the type in regard to colouration are named **rufitincta** *Rothsch.* — ab. **distincta** *Rothsch.* has a black basal $\frac{2}{3}$ rd below the median fold. An extreme form of this is **basimaculata** *Trti.* (= *illustris* *Dannehl*) (2 c); this is a *striata* form on which the entire inner marginal area below the black longitudinal line is darkened with a dark oblique streak up to the apex. Very dark specimens are named ab. **saturiator** *Rothsch.* **bryophiloides** *Rothsch.* denotes small specimens with narrow wings which are grey-brown with almost extinct markings. — Of *striata* (2 b) we are able to illustrate a fine specimen ex the PÜNGELER Collection. — **tibetica** *Strd.* (= ab. 8 *Hmps.*) (2 b) from Lob-Nor are similar to *striata* but the two transverse lines of forewings stand out strikingly prominently black. TURATI has created a number of new names for specimens from Cyrenaica: — **marmorata** *Trti.* a dark form with whitish admixture at base of inner margin behind the antemedian and subterminal lines at costa and inner margin. — **sarrothrypoides** *Trti.* (2 c) are ash-grey specimens with numerous black spots. — **alboscapulata** *Trti.* is a *basimaculata* with dark costal area and a large whitish basal mark on costa. — **dilutata** *Trti.* is grey-white with large trapeziform red-brown costal mark admixed with whitish outwardly. — **trisignata** *Trti.* is similar but also with a red-brown basal innermarginal spot and dark marginal area. — **degenerata** *Trti.* as the former but without the dark margin and the spots more black-brown. — **acceptricula** *Trti.* is ash-grey with large red-brown costal spot that is trapeziform and with bold black anal streak. — **variegatula** *Trti.* is similar to *degenerata* but the black-brown colour is more extensive, so that the white fades away. All these forms are from Bengasi, but also occur occasionally elsewhere.

B. dolopis *Hmps.* (2 c) closely resembles a large *raptricula* and it may be that it should only be classified as a subspecies. Basal and anal $\frac{1}{3}$ rd of the postmedian area are light grey, the latter with a fine white crescent above the inner margin and behind the outer transverse line. Hindwings reddish brown. Certainly as variable as *divisa*. — **pallidior** *f. n.* (2 c) denominates specimens without the dark trapeziform mark on costa. — **striata** *f. n.* (2 c) the corresponding form with the black submedian longitudinal streak. This larger species has hitherto apparently only been found at Askabad and Kushk.

B. raptriculoides *Trti.* (2 c). This species, that is described from Sardinia, closely resembles the *divisa-raptricula*; it is larger and bigger, the wing contour being wider. Ground colour dark ash-grey with faint greenish tone; the large dark brown spot which encloses the orbicular stigma, is not diffuse but sharply outlined, glossy; the markings are delicate but sharp and distinct, a fine white crescent behind the postmedian line in anal area. Hindwings grey-brown not whitish, head and scapulae pale grey. — **mediostrigata** *Trti.* represents the form *striata* of *divisa* with a black longitudinal submedian streak, which intersects the white anal crescent. — **marmorata** *Trti.* (2 c) is much darker black-brown with large white basal spot, the white anal mark considerably more extensive and a white patch also at apex. From Corsica and Sardinia, also from Sicily from the Ficuzza.

- palliola*. **B. palliola** Bkh. (= *fraudatricula* Hbn.). The name given by BORKHAUSEN has a precedence of 10 years and can therefore claim priority as has quite correctly been pointed out by HAMPSON. It occurs throughout Asia to the Amur and Ussuri (according to the PÜNGELER Collection) and is also found on Japan and Saghalin.
- simulatricula*. **B. simulatricula** Guén. (2 d) is certainly a genuine species, as PÜNGELER among others was able to prove by breeding from the ova and it is not the same as *palliola*. It is somewhat smaller, narrower with more acute wings, more whitish and coarsely sprinkled with ashy grey, the markings thereby become more nebulous and less distinct. Especially specimens from Algiers often have a black longitudinal streak at inner margin of forewings, the region round the reniform stigma is sometimes whitish, ground colour variable, ashy grey to reddish yellow-brown. Hindwings quite pale whitish, dusted with grey with fine discoidal lunule and grey-brown postmedian, subterminal and marginal lines. From the Valais (Martigny), Spain, Italy and Mauretania
- zobeli*. from August to November. The larvae feed on *Juniperus phoenicea*. — f. **zobeli** Heinrich is larger than specimens from the Valais, not grey but whitish with blackish markings; ground colour of forewings much darker, more blackish than normal light grey specimens. Hindwings are paler and have 2 narrow marginal bands. Described from Digne.
- pallida*. **B. pallida** Beth. Baker (2 f) described as a local form of *palliola* but with ROTHSCHILD, I consider same to be a genuine species. Smaller than the species named, it is of much paler colouration with decidedly shorter and wider wings. Forewings pale greenish grey, the black transverse lines and the spot in the middle of discal area as there, the black anal streak is absent; both stigmata are finely circumscribed by blackish, more distinct than in *palliola*, reniform stigma filled with pale grey. Hindwings very pale grey with distinct black postmedian line and dark grey discal spot. Described from Egypt (Alexandria), also from Algiers, Tunis and Morocco.
- albomaculata*. **B. albomaculata** Rothsch. (= *albimacula* Oberth.) (2 d) is not allied to *simulatricula*. Head whitish, thorax grey and olive green, abdomen olive brown, grey at extremity. In typical specimens forewings are light grey, more or less dusted with yellowish or glossy olive bronze with a black, twice interrupted longitudinal streak over submedian nervure from base to margin; basal $\frac{1}{3}$ rd admixed with white, the very large reniform stigma white, behind same a curved darker line which is bordered with white over the inner margin; marginal area heavily mixed with white with a dark spot in middle of margin. Hindwings grey-white, ♀ darker, greyer, the posterior transverse line wider with larger white spot below median nervure. Hindwings grey-brown. Algiers
- grisescens*. in August, September. A form found more often in W. Algeria: — **grisescens** Rothsch. is darker grey without the bronze yellow dusting, the reniform stigma is not always white.
- anaemica*. **B. anaemica** Hmps. is held by ROTHSCHILD to be an extreme form of *albomaculata*. Forewings white with brown hue, partly yellowish and sprinkled with black; a black basal streak to elbowed line, which like the inner line is very indistinct blackish; both upper stigmata are small brownish spots in faint whitish ringlets; behind the oblique subterminal line there are short black streaks above and below discoidal and median nervures. Hindwings faintly brownish with white fringes. Expanse of wings 26 mm. Batna.
- pannosa*. **B. pannosa** Wilem. Of this I have no specimen before me. Forewings impure grey-brown, behind the middle with whitish costal spot, apex intersected by a whitish streak, whitish scales along costa; 3 irregular darker transverse lines, each commencing with a small black costal spot, submarginal suffused. Hindwings darker grey-brown. Wing expanse 19 mm. Japan (Hondo).
- mittophaea*. **B. mittophaea** Hmps. (2 d) is a highly variable species. Forewings with yellowish ground densely scaled with rosy-red, somewhat like *Antitype argillaceago*, interspersed with dark lead-grey scales or quite unicolourous
- plumbina*. dark lead-grey: — **plumbina** f. nov. (2 d) only with a few brick-red scales along the transverse lines, the dentate transverse lines indistinctly double; both upper stigmata with dark centres with feeble lighter ringlet and narrowly circumscribed by black, orbicular stigma elliptical, reniform stigma constricted, also a dark claviform stigma indicated; subterminal line faintly paler. Hindwings light yellowish brown, margin darker with white-yellow fringes. W. Turkestan, Alexander Mountains.
- püngeleri*. **B. püngeleri** n. sp. (2 d) resembles the former species somewhat in form and size and is classified in the PÜNGELER Collection in the Berlin Museum under *mittophaea*, but I consider same a separate species. Forewings are somewhat narrower and more elongated on the average, pale yellowish grey, coarsely sprinkled with blue-grey in the basal, discal and marginal areas, the 3 stigmata with darker grey centres and heavily circumscribed by black, the very large claviform stigma with darker centre and conjoined to the orbicular stigma; both transverse lines much less distinct than in *mittophaea* in comparison to the irregularly blue-grey ground colour. Hindwings much lighter whitish yellow-grey, slightly darker at margin with white fringes. Type from Aksu in the DRAUDT Collection, further specimens in the Museums of Berlin and Munich being collected by RÜCKBEIL, also from Mustagata, Yarkend and E. Turkestan from Chamil Hami.
- vilis*. **B. vilis** Hmps. (2 d) is a larger species, forewings with whitish ochreous ground colour densely sprinkled with black, discal area almost completely black, the indistinct transverse lines whitish and feebly dentate; orbicular stigma round finely lightly circumscribed, reniform stigma scarcely discernible; the light subterminal line very indistinct. Hindwings whitish, with faint brownish tinge, darker at margin with white fringes. The ♀ is more uniformly dusted and sprinkled with black. Merv (W. Turkestan).

B. thamanaea *Hmps.* (2 d) belongs similarly with the preceding to the *miltophaca* group. Forewings *thamanaea*. ochreous whitish, peppered with black especially in basal and discal areas, the brown inner transverse line edged basally with ochreous white, the elbowed line double; both upper stigmata large with black centres and pale edge finely outlined by black. Orbicular stigma round, reniform stigma 8-shaped, instead of a subterminal line small blackish spots on the inner side. The whitish hindwings with brownish tinge and traces of a postmedian line and a discal spot. Persia, Shakuh.

B. hampsoni *sp. n.* (2 e) is as large as *miltophaca* with still wider wings, quite milky white adumbrated *hampsoni*. to a grey-black in basal area and widely in disc, sparsely peppered with black scales in front and behind the shade. Transverse lines only indicated by colour contrast, the posterior line extends in a wide arch around the reniform stigma which has a somewhat dark grey-black centre and is edged with white. Subterminal line faintly dentate, indicated by somewhat denser blackish sealing, a larger spot at costa. Marginal area scarcely more densely peppered, small spots at margin. Hindwings thinly scaled somewhat darker in shade than ground colour of forewings with darker discal lunule and marginal nervures. North Alai (Ispayran), ♂ type in the PÜNGELER Collection; HAMPSON had the type before him and assumed it belonged to a new Genus, but I prefer to classify same here.

B. plumbeola *Stgr.* (Vol. 3, p. 20, pl. 4 c). — ab. **syriensis** *Strd.* (= ab. 1 *Hmps.*) has the postmedian *syriensis*. area of forewings with the exception of costal and marginal areas rather more yellowish. Syria.

B. albiceps *sp. n.* (2 c) is a somewhat more slim, narrow winged species. Head and upperside of palpi *albiceps*. white. Forewings whitish densely dusted with grey-black with the sole exception of the transverse lines which remain white. Stigmata in median area therefore barely prominent; inner transverse line wide, elbowed line of usual shape in a wide arch around the reniform stigma, concave outwards on the submedian, projecting in a dentation along nervure 1; subterminal also whitish, fringes intersected by a dark line. Hindwings pure white. Type in the Collection of O. B.-HAAS. According to a ♂ from Garm, Peter the Great Mountains, captured in June.

B. protecta *sp. n.* (*Püng. i. l.*) (2 e). Under this name there is a specimen in the PÜNGELER Collection *protecta*. that is somewhat like *albiceps*, grey-black peppered with white and with white transverse lines which are rather differently shaped and more sharply outlined by black. It also has brownish grey hindwings. Lagodechi.

B. eucta *Hmps.* (2 e). Head and thorax whitish with darker admixture. Forewings ochreous-whitish *eucta*. peppered with brown-black with indistinct blackish transverse lines, the inner one vertical, slightly undulate, the posterior finely dentate of usual form, the discal area between same blackish, the stigmata therein with indistinct pale edges; orbicular stigma round, reniform stigma elliptical; the indistinct pale subterminal line with black-brown inward edge. Hindwings white with brownish margin and white fringes. Persia (Urmiah); W. Turkestan (Askhabad).

B. glaucula *Stgr.* (= *frandatricula* *Leech* nec *Hbn.*) (Vol. 3, p. 20, pl. 4 c) (2 e). We are giving here *glaucula*. a good illustration of this rare species in the Berlin Museum from the PÜNGELER Collection.

B. labecula *Led.* (Vol. 3, p. 20, pl. 4 c) (2 a). We are giving a further illustration from a perfect specimen. *labecula*.

B. granitalis *Btlr.* (2 e) is omitted. It resembles a large *algae* in the markings, basal area pale grey; *granitalis*. the outer margin more oblique than in *algae*, more resembling *raptricula*; middle area black admixed with chestnut brown, narrow at costa and inner margin, very wide in cell by the large arch around the reniform stigma; this as well as costa and inner margin pale grey subterminally and as far as margin; centre of margin reddish brown; above the submedian fold a heavy black angulated streak between the postmedian and anal angle. Hindwings grey-brown. The species is closely related also to *glaucula*, but is specifically different; the latter is darker and has no pale grey basal area. E. Siberia, Ussuri; Japan and Central China.

A. strigula *Bkh.* (= *receptricula* *Hbn.*) (Vol. 3, p. 20, pl. 4 d). — ab. **fasciata** *Spul.* has no black on *fasciata*. forewings except for the inner edge of the subterminal line. — **hartmanni** *Spul.* is darker grey admixed with *hartmanni*. white in centre of wing, indistinctly marked. From Silesia. — ab. **guglielminae** *Ragusa* has a large white *gugliel-* basal spot on forewings. Other authors hold same to be more probably an *algae* form. I cannot express an *minae*. opinion owing to insufficient material. Sicily. — ab. **virescens** *Dannehl* shows a liberal moss-green suffusion. *virescens*. Mid-Italy.

B. ravula *Hbn.* (Vol. 3, p. 20, pl. 4 d) occurs as far as Algeria, Tunis and Morocco. — **grisescens** *ravula*. *Oberth.* is a unicoloured pale ashy grey form frequent in N. Africa. According to 6 specimens in my collection *grisescens*. from Haifa — **rectilinea** *Warr.* should also be classified here as an extreme pale grey form of *ravula* — *ex-* *rectilinea*. ceeding *grisescens*; very variable, discal area occasionally faintly adumbrated, in one specimen the inner transverse line expanded forming a blackish antemedian band. In Portugal only a unicoloured dark, almost black form occurs: — ab. **unicolor** *Spul.* — ab. **ravulana** *Strd.* (= ab. 3 *Hmps.*) resembles *vandalusia* but has a *unicolor*. rusty red antemedian area on forewings. Syria. — subsp. **tatsienluica** *Obth.* is a large race, the black inner *ravulana*. transverse line on forewings more rounded, with 2 black longitudinal submedian streaks, a short one before *tatsien-* the inner transverse line and a longer one from the postmedian to margin; stigmata as in *ravula*, similarly *luica*. hindwings; ground colour of forewings dark grey, rufous admixed with whitish and black. Thibet.

- petricolor.* **B. petricolor** Led. (Vol. 3, p. 20) is according to REBEL only a large clearly marked form of *ravula-vandalusiae*.
- atrimixta.* **B. atrimixta** Hmps. Forewings black, admixed with white and rufous; the black subbasal line does not extend as far as inner margin, the black arched inner transverse line is indistinct; both stigmata with fine black edges, orbicular stigma oblique with black central line; posterior transverse line black with white edge outwardly below the submedian fold; subterminal indicated by small black spots which are edged with white towards the inner margin; a white line along base of fringes. The white hindwings dusted with brown, darker towards margin with dark median shade and arched postmedian. Wing expanse 26 mm. Trong-sze, (W. China) from an altitude of 9600 feet.
- galathea.* **B. galathea** Mill. (Vol. 3, p. 20, pl. 4 d) occurs rarely also in Algeria (Ain Sefra) in May. — subsp. *amoenissima* Trti. (2 f) is, as I am firmly convinced, a form of *galathea* with paler wing colouration; ante-
simia. median and marginal areas almost white with bluish green admixture, discal area black-brown sometimes
aequalis. as pale as ground colour: — *aequalis* f. n. (2 f); a very easily recognisable form from Mid-Italy, Abruzzi, Majella Pescocostanzo. Type of the form *aequalis* in the collection of DRAUDT.
- tabora.* **B. tabora** Stgr. (Vol. 3, p. 20) (2 g). This apparently very rare species appears to be extending its distribution, we illustrate a specimen corresponding to type from Transcaspia ex the collection of PÜNGELER.
- bitineata.* **B. bilineata** Roths. (= *rosinans* Obth.) (2 f). A very variable species, deemed by OBERTHÜR to be a form of *ravula*, but very different from same. Ground colour with reddish yellow tone, peppered with grey-brown, otherwise marked as *ravula*; a row of black marginal dots in front of the long brown fringes, that are frequently checked with fulvous. Hindwings whitish in ♂ shaded with brown at margin, pale brown in ♀. Abdomen basally with velvety black tufts, which are very easily rubbed off. Underside silky glossy reddish white. — *murina* Obth. designates quite brown specimens. Géryville, Aflou, Guelt es Stel, Lambessa in August and September.
- rutilans.* **B. rutilans** Trti. (2 f) is close to *bilineata* and according to the illustration is also not dissimilar from a reddish *microglossa*. Ground colour more or less lively fulvous, very variable in markings, finely marbled blackish, blackish spots before and behind the stigmata, transverse lines occasionally edged with white: —
albosignata. **albosignata** Trti. from the Cyrenaica (Bengasi) in October. I have no specimen of the species before me. In my opinion it would not be excluded that there is a subspecific relationship with *microglossa*.
- algae.* **B. algae** F. (= *chloris* Bkh.) (Vol. 3, p. 20, pl. 4 c). Occurs in August and September in Algeria and is very variable; some specimens with whitish patch in the area of reniform stigma. POWELL discovered
strigula. the larvae under the bark of Olive trees. Also occurs in Egypt. — f. *strigula* Guén. designates the more monotonously coloured specimens without green and therefore without contrasting discal area. Possibly the same
antemedio- as *spoliatricula* Hbn., but as the latter is not illustrated, it is impossible to form a correct opinion. — ab. *ante-*
alba. **medialba** Strd. (= ab. 4 Hmps.) has a whitish basal area on forewings and occurs everywhere with the name
lusitanica. type form. — *lusitanica* f. n. (2 f) is a beautiful form with white ground colour, pale green, dusted over as in *muralis* and with only delicate black markings; 2 archs as a subbasal, the 2 transverse lines adjoining the discal area and a black, heavy submedian streak; both stigmata indicated by faint grey nebulae and a very faint subterminal. Hindwings white with grey discal lunule and 2 shadow bands before the margin. Portugal. Type in the collection of B.-HAAS. Held by PÜNGELER to be an *algae* form, but same seems very strange when placed next to it.
- aerumna.* **B. aerumna** Culot (2 f) resembles a small grey *algae*, forewings quite pale olive-grey, basal and discal area adumbrated grey-black, the latter only at inner margin and along the edges of the two transverse bands adjoining same; stigmata with fine white edges, slightly darker; submarginal area paler, almost white, fringes red-brown. Hindwings paler grey than forewings, almost whitish with grey discal spot and arcuate often indistinct submarginal. An only slightly variable species from Maurctania, occurring profusely in Aflou and Géryville in June and July, also in Tunis, but there only in September.
- simonyi.* **B. simonyi** Rghf. (Vol. 3, p. 20, pl. 4 c) (2 g). We again illustrate this small only slightly variable species, as the figure in Vol. 3 does not correctly illustrate the species. Besides occurring on Madeira and Teneriffe it also occurs on the other small volcanic Islands. The larvae are found in April under stones, they are earthy grey with a few long black bristles and prepare a firm reddish cocoon in which they remain unchanged still in June.
- B. roederi* Stfs. (Vol. 3, p. 21, pl. 4 c) must be removed from here, it belongs to the Genus *Bryophilopsis* of the *Sarrothripinae*.
- aurolichena.* **B. muralis** Forst. (Vol. 3, p. 21, pl. 4 f). — **aurolichena** Culot (2 g) shows the green colouration of forewings changed to a golden ochreous, the usual markings are distinct with small white spots between same.
argillacea. Hindwings blackish on upperside. From England. — **argillacea** Culot has unicoloured luteous red-brown ground
brunnea. colour without the whitish patches. Described from Geneva. — **brunnea** Porritt from England is probably
scoriatula. very close to the latter form. — **scoriatula** Trti. from Sicily has the entire ground peppered with black scales, so that the olive tone of the ground colour is almost completely covered; the black transverse stripes are

wide, stigmata like glowing coals therein. — **dispar** *Vrty.* has green scales on forewings without yellowish or *dispar.* brownish tone. The other black markings sparse or indicated by deeper green. Hindwings paler than in other races. Apennines in August. — **amasina** *subsp. n.* (2 g) denotes specimens from Amasia. They are small *amasina.* and pale, of the same colour as *perla* with grey-brown basal, discal and marginal areas.

B. burgeffi *sp. n.* (2 g) is a small and pretty species, reminding one of *muralis*. Ground colour is a *burgeffi.* very pale greenish yellow; delicately and sparsely marbled with black in the somewhat chalky scaling; markings very finely outlined with black; an incomplete double subbasal, a double antemedian consisting of 3 large arches; the intermediate area somewhat more heavily peppered with black and situate therein the round dark orbicular stigma with black centre and the pale reniform stigma with concave inner edge towards the base. Between the two stigmata there is a circular paler and less speckled area which gives the impression of being a pale round stigma; the edge of the claviform stigma is also indicated by a dark streak to the dentate double postmedian; the subterminal generally only outlined as the dark edge along the unspeckled marginal area; the white fringes have dark cheeks with black marginal streaks before the pale patches. Hindwings white, veins narrowly dark, with black marginal line and blackish discal spot, a fine postmedian and antemarginal, the latter heavier towards anal angle, in one specimen expanding to a blackish band. According to 4 ♂♂ brought from Macedonia (Uskub) by Prof. v. BURGEFF. Type in the Munich State Museum.

B. muscicolor *Kozhant.* Head and prothorax delicate green with a few blackish spots and streaks, *muscicolor.* abdomen grey. Forewings delicate green with black and white markings; basal line does not extend to inner margin, both median transverse lines fine, distinct, velvety black with fine white edges facing one another; orbicular stigma small, sharply outlined, filled with delicate green with white ringlet; reniform stigma large, coloured as the orbicular, both conjoined basally by a fine black and white streak, the large claviform stigma touches the orbicular; beyond the inner line 3 indistinct white spots: a large one at inner margin, a smaller one in the middle and again a larger one before the apex; marginal area beyond same a delicate green with a marginal line of black, inwardly white marginal lunules; fringes black, white and green. Hindwings dark, paler towards base with faintly indicated discal spot and black and white checked fringes. Wing expanse 30 mm. According to 1 ♂ caught in July on the Kasyr Ssuk river. The type is unique and is placed in the Lenin-grad Museum. FILIPJEFF deems same synonymous with *Valeria sauberi* *Graes.*

B. maeonis *Led.* (Vol. 3, p. 21, pl. 4 h) (2 h). The real type, as we are illustrating here once more is yellow- *maeonis.* grey admixed with darker yellow-grey and bluish ash-grey. — **sordida** *Stgr.* (2 h) is much darker, black-grey, *sordida.* partly leaden grey. It seems to me questionable whether the *rubellina* classified here are correctly specified, as all the specimens of this form have considerably longer and narrower wings with more oblique outer margins. The pale reddish — **rubellina** *Stgr.* (2 h) which we are illustrating here again, emanates from Shakuh and *rubellina.* differs from the central asiatic form from the neighbourhood of Askhabad, which is of a constant pale yellow grey colour. It also has longer wings and with faintly dusky discal area and I should like to denominate same — **centralis** *f. n.* (2 h). Type in the collection of DRAUDT. Similar specimens are to be found in the State *centralis.* Museums of Berlin and Munich.

B. perla *F.* and **perlodes** *Guén.* (Vol. 3, p. 21, pl. 4 g). These are a difficult problem. I am of the same *perla.* opinion as SPULER that *perlodes* and *perlina* *Stgr.* are identical, whilst I consider *pyrenaea* *Obth.* to be a gen- *perlodes.* uine species, chiefly because it is slightly larger on an average with sleeker and more pointed wings occurring next to the small *perla* forms flying in Spain. We have to enumerate the following forms of *perla*, besides the small *perlodes*, which are sometimes suffused with reddish yellow and always have the same wing contour with truncate apex and occur in S. Tyrol as well as in Spain: — ab. **dufranei** *n. n.* (= *grisea* *Dufrane* nec *Vorbr.*) *dufranci.* characterised by completely dark grey hindwings so that the outer lines become extinct and only the cell spot is somewhat visible. Forewings with expanded black markings which are not speckled as in *suffusa*. Under- sides more grey, described from Belgium. — **confinis** *Dannehl* (2 i) from Trafoi with pale grey-green ground colour- *confinis.* ation, very delicate and somewhat diffuse markings which are grey and not black. Hindwings widely dark along margin with highly prominent cell spot in the shape of a lunule. — **grisea** *Vorbr.* has forewings dusky and an *grisea.* impure grey-brown, so that only one spot at base and a patch in the lower 3rd of margin retain the light ground colour; also hindwings are dark grey-brown with darker cell macula and a few small paler marginal dots. From Hauterive. — **abruzzensis** *Dannehl* from the Gran Sasso and Majella is green-grey without yellowish *abruzzensis.* or reddish tone, discal area barely darker, markings delicate but clear; fringes brightly checked. Hindwings grey-white with a uniformly wide grey marginal band and submarginal whitish dots between the nervules. At an altitude of 1200—2500 m. — subsp. **corsivola** *Schaw.* (2 h) a remarkable form with preponderantly pure *corsivola.* white and not grey ground colour, but almost blue-black markings, both stigmata and the discal area below the orbicular stigma densely black. Hindwings with well pronounced discal spot and dark margin. Corsica from altitudes of 1400—2000 m in July. — *perla* is found in profusion also in Mauretania and Egypt and in apparently typical form.

- pyrenaea*. **B. pyrenaea** *Obth.* (Vol. 3, p. 21, pl. 4 f) (2 h). As already mentioned under *perla* I meanwhile hold this to be a genuine species. Same is not solely confined to Spain, but occurs also on S. Tyrol and in very large dark specimens in Zermatt. Similarly to *lutescens* of *perla*, forms also occur suffused with yellow-red:
- rosina*. — **rosina** *Culot*. The solution of the problem of *perla* and related forms must be reserved for future more exhaustive research.
- pseudo-perla*. **B. pseudoperla** *Rothsch* (2 i). established from a ♂ from Guelt es Stel. in Algeria. Head and thorax grey-white the latter peppered with brown-grey. Forewings grey-white speckled with brown-grey with numerous dentate black lines and with a large grey antemedian spot inwards of the orbicular stigma; fringes grey-white with black checks. Hindwings mouse-grey with white fringes.
- du seutrei*. **B. du seutrei** *Obth.* also closely resembles *perla*; it is somewhat smaller, markings more delicate and more clearly defined on whitish ground; spots and lines black, between same yellow-red spots as in many lichen kinds. Varies considerably in paler and darker colouration. Morocco in August.
- antias*. **B. antias** *Culot* (2 h) of same size as *perla* but less delicately built. Ground colour of forewings pale fleshy reddish ochre, finely sprinkled with brown, the brown orbicular stigma elongated below the median nervure along the inner line, reniform stigma small and round, other markings fairly similar to those of *perla*. Hindwings whitish grey somewhat duskily brownish in marginal area and with delicate brown streak in cell. S. Oran, Sebdou, Géryville, Guelt es Stel. August to October.
- paulina*. **B. paulina** *Stgr.* (Vol. 3, p. 21, pl. 4 h) (2 l) has also been discovered in Egypt.
- splendida*. **B. splendida** *O. B.-Haas* (2 i) is to be classified after *obscura* *Warr.* Forewings black at base, then greenish white wherein is situate a long, broad black streak-like mark; in the olive green discal area there is the reniform stigma with black dot in centre and white surround; the blue-green marginal area is a half-way shade between basal and discal areas and has 3 black dots at costa, anal angle and a triangular one in centre; both transverse lines are black, slightly undulate. Hindwings brownish grey. Wing expanse 21 mm. From Sutshansk, S. Ussuri in July.
- mimouna*. **B. mimouna** *Obth.* resembles *commixta* *Warr.*; forewings yellowish or faintly rose-whitish with heavy silky gloss, coarsely sprinkled with blackish grey so that the transverse lines are not clearly apparent; sub-basal and inner lines somewhat more distinct than the elbowed line; 2 faint patches in discal area. Hindwings of same ground colour as forewings. Morocco in August.
- syrticola*. **B. syrticola** *Trti.* (2 i) reminds one strongly of *rectilinea* *Warr.* I have no specimen before me and therefore cannot decide whether there is a specific difference from the form named. According to the description the forewings are yellowish earthy grey with 3 extremely delicate black transverse lines of the same shape as those of *rectilinea* but according to the illustration the posterior line is situate nearer the margin, the colour is more reddish, hindwings more brownish. — In **trapezoidalis** *Trti.* (2 i) the discal area between the lines is adumbrated in the form of a trapeze, hereby resembling *ereptricula*. Cyrenaica (Bengasi) in October.

19a. Genus: **Oederemia** *Hmps.*

Very close to *Bryophila*, differing by the somewhat longer palpi and a rounded projection on clypeus with a horny process under same; more hairs admixed in covering of thorax and besides on the metathorax there is a tuft of loose hair on prothorax. Everything else is identical. *CULOT* names the Genus *Jugurthia*.

Type of the Genus: *Oe. lithoplasta* *Hmps.*

- diadela*. **Oe. diadela** *Hmps.* (2 i). Forewings with yellow-white ground densely sprinkled with black. Antemedian area pure white; posterior to the inner line and in front of the whitish subterminal or over the entire marginal area a reddish brown dusting; the black dentate transverse lines have white edges on the sides remote from one another; the two upper stigmata are large with black centres and edges, also the claviform stigma is faintly marked with black. Fringes white and black mixed. Hindwings brownish grey, duskier in marginal area with discal lunule and transverse line beyond, on the margin black streaks that are whitish inwardly. Fringes yellow-white. Alexander Mountains.
- lithoplasta*. **Oe. lithoplasta** *Hmps.* (2 k) is similar, paler, forewings whitish, more faintly sprinkled with black and scarcely tinged with ochreous; both upper stigmata white with faint black outline, the round orbicular stigma with ochreous centre, reniform stigma with brown longitudinal line near its inner edge; the elbowed is double but only the inner line is black and distinct, the outer one more diffuse; behind the white subterminal line, the marginal area is adumbrated. Hindwings pale brownish grey with faint discal streak, outer transverse line and subterminal shade. Fringes white. W. Turkestan (Tashkend); Ili territory.

Oe. gracilis *sp. n.* (2 k) very close to *lithoplasta*, it is smaller with narrower wings and more oblique *gracilis*. margin to forewings; colour as the former but the discal area is more uniformly adumbrated with grey-black; orbicular stigma is much smaller, reniform stigma more heavily shaded with brownish grey. Hindwings much more darkly grey-brown. According to a single ♂ from Issyk-kul in the Munich State Museum.

Oe. umovii *Ev.* (= *colorata* *Krul.*) from Vol. 3, p. 21 should be classified here according to HAMPSON. *umovii*. I have not personally seen this insect.

Oe. precisa *Warr.* (= *salmonia* *Culot*, *superba* *Rothsch.*) (2 k) should be removed from Vol. 3, p. 23 *precisa*. and classified here. The species resembles certain *microglossa* from Andalusia with a monotonous ochreous reddish tone to forewings without white lines and without adumbration in discal area; the elbowed line consists of small concave crescents, in *microglossa* of a delicate uninterrupted black line. Hindwings like same. Algeria (Sebdou, Géryville) in August and September.

Oe. subplumbeola *Culot* (= *cinnamomina* *Rothsch.*) (2 k) described as a *Catamecia*. Forewings red-brown, *subplumbeola*. the paler patches violet-grey, the upper ones a darker shade than the lower; both transverse lines delicate and distinctly black, the stigmata only faintly edged with a dark surround, darker than ground colour. Hindwings with distinct discal spot. Algeria (Sebdou, Géryville, Lambessa) in September and October. — f. **precisa** *Culot* has more definite markings and is coloured with greater contrast and rather paler. — **suffusa** *precisa*. *Rothsch.* has a brown subbasal complete line instead of a line of dots and beyond same is suffused with *suffusa*. slate grey as far as the margin. — **fasciata** *Rothsch.* has dark cinnamon brown forewings with 2 brown spots re- *fasciata*. placed by 2 bands. — **griseola** *Rothsch.* has grey dusted forewings, the brown spots being smaller and paler; *griseola*. the elbowed line double, bold with white edge outwardly, brown inwardly. Hindwings grey-brown.

Oe. marmorata *Warr.* I have had no specimen before me. Forewings bluish white in basal area, along *marmorata*. the costa to the outer line and in the 3 stigma, the antemedian is black the inner portion subdivided into 3 parts, the outer dentate; the round orbicular stigma is confluent with an oval spot below same, reniform stigma like a large lunule, claviform stigma like a white crescent; all 3 with black edges, discal area around same suffused with olive-brown; elbowed line undulate and dentate, filled with bluish white and beyond same irregular dark spots; in the blue-grey marginal area there is an indistinct pale subterminal and a brownish spot behind the cell, black marginal streaks, fringes white with dark checks. Hindwings pale grey with dark marginal line and pale fringes mixed with dark. ♀ intensively brown with black markings; the white spot below the orbicular stigma quadrate, extending in a dentation to the postmedian and becoming confluent with the claviform stigma. Wing expanse 32 mm in ♂, 28 mm in ♀. Kuku-Noor (Thibet).

Oe. confucii *Alph.* (2 k) from Vol. 3, p. 22 should also be classified here. The illustration is from a *confucii*. specimen in the PÜNGELER collection.

Oe. chloromixta *Alph.* (Vol. 3, p. 22, pl. 4 h) (2 i). We are giving a fresh illustration.

19b. Genus: **Poliobrya** *Hmps.*

Differing from the previous Genus by the absence of the proboscis; clypeus smooth as in the *Bryophila*. Thorax without tufts and only covered by coarse scales, otherwise of same construction as the two preceding Genera. Only one species:

P. patula *Püng.* (2 l). Forewings whitish, dusted with ochreous and sprinkled with black; both dentate *patula*. transverse lines black, edged with diffuse white on the edges remote from one another, the black-brown stigmata with blackish edges and traces of a central shade between them; in front of the whitish subterminal there are diffuse black sagittate marks, the whitish fringes checked with black-brown. Hindwings brownish with discal streak and 2 diffuse transverse lines behind, the veins being darkly outlined in marginal area. E. Turkestan (Saichin, Korla).

19c. Genus: **Bryomoea** *Hmps.*

Has a very stunted proboscis, no tuft on prothorax, otherwise as previous Genus. Only one species:

B. melachlora *Stgr.* (Vol. 3, p. 22) should be classified here. In the PÜNGELER Collection its origin is *melachlora*. given as S. Ussuri (Kasakewitch).

19d. Genus: **Meroleuca** *Hmps.*

Very close to the previous Genus. Proboscis stunted, 3rd joint of palpi much shorter than in the preceding; clypeus with rounded projection and horny plate thereunder; thorax quite without tufts, also abdomen.

microglossa.

M. microglossa *Rbr.* (21) to be transposed from the classification in Vol. 3, p. 22, pl. 4 i and placed here. The species is widely distributed and also occurs in Syria. The almost unrecognisable illustration of this very variable species is replaced by a better illustration depicting both sexes.

19 e. Genus: **Bryoleuca** *Hmps.*

Transposed from p. 200 where it was named as the 49th Genus and best classified here. The only known species:

trilinea.

B. trilinea *Beth.-Bak.* (Vol. 3, p. 200, pl. 48 b) (21) strongly resembles a small pale *B. divisa* form and hitherto has only been found in Egypt, where it occurs in September and October. Biologically the species should be placed here, as the larvae, that are blue-grey with warts having sparse yellow hairs, live on walls in a small cocoon covered with sand and mortar and feed on lichen.

C o r r e c t i o n :

- p. 5 line 2 from top read instead of *Aeronyetinae*: *Aeronietinae*.
p. 7 line 8 from bottom read instead of *Aeronyeta*: *Aronieta*.

3. Subfamily: **Agrotinae** (*Euxoinae*).

By Dr. A. CORTI.

In Vol. 3 of this work, pages 23 onwards, W. WARREN followed when dealing with this subfamily the classification of Sir G. F. HAMPSON in Vol. 4 of the *Lepidoptera Phalaenae* of the British Museum. He made however some drastic alterations grouping for instance HAMPSON's Genera *Euxoa* and *Feltia* in a single Genus *Euxoa* and also the Genera *Agrotis*, *Epipsilia* and *Lycophotia* in a single Genus *Rhyacia*. In accordance with the present state in the study of the *Agrotinae* neither the first classification by HAMPSON, nor the second by WARREN can be retained. This especially on account of the importance now attached to the structure of the male genital organs which was only partly taken into consideration by HAMPSON, but not at all by WARREN. Therefore quite a new subdivision has become necessary. The subfamily of the *Agrotinae* doubtless belongs to the most difficult and complicated of all the Noctuides and a great deal of research work will still be necessary to introduce perfect clarity into the sometimes very confused state of affairs. The following classification of the *Agrotinae* therefore is made without any claim to absolute correctitude or completeness and it is merely an endeavour to make a record as far as is possible of the present position of this family. Consideration has been given to the question of variations and races in those species where they actually and constantly occur and these are enumerated as "v.". On the other hand on principle the author wishes to resist introducing a list of the innumerable denominations for aberrations. He is firmly convinced that only immeasurable confusion will be produced by this absolutely unnecessary denomination craze and that it is the duty of every serious entomologist to oppose same. This without in any way deprecating the importance of the interesting study of aberrations in relationship to possibilities of variation in any given species. Most of the *Agrotinae* vary very considerably among themselves, in many species the degree of variability is so great that among a series of hundreds of specimens there are scarcely two that can be said to be exactly identical. Only at the special wish of the editor the aberrations that have been newly denominated since the publication of the main Volume, have been enumerated, partly because this was initiated in the main Volume and partly to give our readers an opportunity of knowing what is intended by these denominations.

The ♂♂ genital organs, the structure of which is a most valuable help in differentiating the Genera rather than the species, have been examined by other authors and myself covering the greater majority of all the hitherto known palaearctic *Agrotinae*. In such cases where it has been impossible to make an examination or where it cannot be decided with certainty that a particular species actually belongs in a relative Genus, I have placed a question mark behind the name of the Genus, thus *E. (?) earthalina* *Christ*.

The antennae of the *Agrotinae* are very varied in formation. Their construction, whilst being important for a systematic classification, is not always proof of a close relationship of particular species or the reverse. Often in the same Genus, they differ exceedingly, as of course also occurs in other Genera of the Noctuides (compare for instance *Valeria oleagina* and *jaspidea*). For purely practical reasons and because this work is essentially a supplement, I have retained WARREN's, respectively HAMPSON's subdivision into Sections. I must however lay stress on the fact that this subdividing into sections is often very difficult with the very great diversity in the antennae and it should not be accepted as absolutely final.

The subfamily of the *Agrotinae* is mainly to be recognised by the presence of 3 characteristics, each of which is of equal importance. The first is the naked eyes, the second the absence or stuntedness of vein 5 of the hindwings, the third the presence of various spurs on the front, middle and hind tibiae, or on one

of these tibiae. In the *Euxoa* and *Agrotis* (*Feltia*) all the tibiae have spurs, the front ones very stout. Then follow those Genera in which the tibiae also all have spurs, but the front tibiae have much weaker spurs than is the case in *Euxoa* and *Agrotis* (*Feltia*). Then follow those having no spurs on the front tibiae, then those with spurs only on middle and hind tibiae and finally those with spurs only on the hind tibia.

The formation of the frons is of great importance in the systematic subdivision of the *Agrotinae*. The clypeus is either glossily smooth, or even and rough or with a protuberance that often varies considerably in its form in one and the same species having a crater-like or wart-like formation. This formation is sometimes absent as a rule (as for instance in *ypsilon* Rott.) or more rarely (as for instance in *exclamationis* L.) Whenever it occurs it offers a valuable means of diagnosis together with the other characteristics. These clypeus processes are most strongly pronounced as a rule in the species of the Genera *Cladocerotis*, *Euxoa*, *Agrotis* (*Feltia*) and *Dichagyris*.

In regard to the biology of the *Agrotinae*, same is without a doubt of great importance for a systematic classification of this subfamily. Through the nature of a comprehensive work such as we have undertaken this question can only be lightly touched upon. The ova of the *Agrotinae* are of very varying construction. The most primitive oldest forms in my opinion deposit simple, irregularly shaped, unicoloured, more or less faintly ridged ova, either in batches next to or over one another. This chiefly concerns such species and Genera (*Euxoa*, *Agrotis* (*Feltia*) etc.) whose larvae are typical subterraneous larvae. The ova of the other species are globular, oval or gourd-shaped, heavily ridged, with spots or with coloured zones of all possible colour combinations, either in direct rows or adjoining areas.

The larva can be divided into at least two large groups. The first group covers the typical subterraneous larvae, that pull their food into the earth, should no more be present below the surface. These are heavily formed caterpillars of grey to reddish or brown colour with relatively little marking, short bristles, which in the very young stages bear curious small clubs at the extremities. These larvae are in general very lazy, they do not spin threads or take up a posture of fear when disturbed. The second group concerns the superterrene (as a matter of fact generally concealed, either in the uppermost layers of the earth or under leaves etc., but not living typically in the earth) larvae. These are partly very brightly coloured and marked, they have no club-like processes on the bristles, very easily take up a posture of fear on being disturbed, easily spin threads and in general are very lively, forming a direct contrast to the larvae of the first group. Transitory forms of course occur.

The pupae are generally coloured yellow to red-brown. Occasionally they are deep in the earth, occasionally nearer the surface, sometimes quite without and again with very tough cocoons. The number of cremaster spines varies considerably, as does the formation of the cremaster.

20. Genus: **Euxoa** Hb.

This Genus is characterised by the stout spurs on the front tibiae (middle and hind tibiae also have spurs), by a bifurcated clasper in the male sexual organ, having both prongs approximately of the same length and by a stout, crater or wart-like process on the clypeus. Now and then specimens occur in one and the same species without this projection. Type: *E. decora* Hb.

Section I: Antennae of ♂ pectinated to apex, pectinations long.

E. rugifrons Mab. (= *E. bledi* Chrét., *E. urbana* A. B.-H.) (Vol. 3, p. 24, pl. 5 e ♂) (3 a). Algeria, Oran, *rugifrons*. Tunis. August to November. Early stages unknown.

Section II: Antennae of ♂ pectinated almost to apex, pectinations long.

E. subdistinguenda Corti (3 a ♂ type). A species that varies exceedingly both in colouration and marking. The types are very similar to the genuine *distinguenda* Led. but the antennae are more heavily pectinated with wider pectinations. Orbicular stigma usually small, round with whitish centre. — v. **multisigna** n. *multisigna*. (3 a ♂ type) is to denote a grey to grey-brown form, orbicular and reniform stigmata almost extinct, no pale streak along costa and with distinct inner and outer transverse lines. It compares approximately as *eruta* Hb. does to *tritici* L. Perhaps this is a new species, related to the following *mendeli* Fdz. Spain, Albarracín in August-September. In spite of the extreme range of variation of this fine species, a number of aberrations have already been named. — ab. **diluta** Schaw. with pale brown almost whitish brown forewings, markings *diluta*. extinct, pale costa, pale stigmata, black basal streak, black claviform stigma and the pre-marginal sagittate spots quite absent. — ab. **obscura** Schaw. is the name given to the counterpart in darkest brown with scarcely *obscura*. any markings. Albarracín, Spain. Ova whitish yellow, without ridges, in batches. Larvae almost uniform blue-grey, underside somewhat paler, lateral line and bands scarcely discernible. Head and scutellum dull buff, scutellum clumsy and divided. Larva similar to those of *hastifera* Donz. Pupa yellow-brown in a cocoon of earth, two diverging cremaster spines.

- mendeli.* **E. mendeli** Fdz. (3 a ♂ eotype). Similar to v. *multisigna* of the preceding species but much more vividly marked. Generally smaller, more unicoloured grey, no light streak along costa, inner and outer transverse lines as a rule distinct. Hindwings pure white to grey white. Specimens occur that are most distinctly marked and again others that are almost unicoloured. It varies therefore considerably. — The ab. **deleta** Fdz. with paler forewings and with extinct lines and stigmata is according to BOURSIN probably synonymous with *cos* Hb., that is to say with a small specimen of this species. — ab. **identata** Fdz. denotes specimens in the author's collection without sagittate marks. Spain in September-October. Early stages unknown.
- capsensis.* **E. capsensis** Chrét. (3 a). Similar to *mendeli* Fdz. but much more brightly marked and coloured, inner and outer transverse lines clear, a pale yellowish undulating subterminal line present. Often has heavy sagittate marks, which rarely occur in *mendeli* and then only faintly. Hindwings pure white, rarely grey-white.
- chrétienii.* Also resembles *lasserreii* Obth., which however belongs to *Agrotis* O. (*Feltia* Wkr.), the pale — v. **chrétienii** Obth. (3 b ♂ type) is probably only a colour variation of *capsensis*. Algeria in September-October. Early stages unknown.
- perambulans.* **E. perambulans** nov. spec. (3 b ♂ type). Almost identical with *temera-hübneri* Brs., however the antennae are pectinated to the apex. Hindwings still whiter than in *temera-hübneri*. Sagittate marks always more or less distinct. Algeria in September-October.
- carthalina.* **E. (?) carthalina** Chr. (Vol. 3, p. 24) is probably no *Euxoa* but an *Agrotis* O. (*Feltia* Wkr.).
- The following species classified in Vol. 3 under Sections I and II, p. 24—26 do not belong to *Euxoa* but are to be classified under *Agrotis* O. (*Feltia* Wkr.): *obesa* B., *scylla* Alph., *crassa* Hb., *dirempta* Slgr., *lasserreii* Obth., *boetica* B., *picretti* Bugn., *matritensis* Vasqu., *fatidica* Hb., *sabulosa* Rbr., *chrétienii* Dum., *bifurca* Stgr., *segetum* Schiff., *robusta* Ev., *characteristica* Alph., *trifurcula* Stgr., *trifurca* Ev., *rula* Ev., *corticea* Schiff., *turalii* Sldfs., *anarmodia* Slgr. and *lazarolensis* Rbl. Further *trifida* Fisch-Wldh. belongs in a quite different Genus and *polybela* Joan is no *Agrotinae* at all, but belongs in the subfamily of the *Cucullianae*, Genus *Omphaloscelis* Hmps.
- Section III: Antennae of ♂ pectinated to 2/3rds of their length, pectinations shorter.
- temera.* **E. temera** Hb. In this species and its varieties I follow the researches of BOURSIN with the exception of *villiersi* Gn. despite the fact that everything is not clearly laid down yet and that all the variations are probably simply colour and marking aberrations. The most likely is that *temera-hübneri* is a genuine variation. Underside of forewings in all forms with very distinct discoidal spot. — **temera** Hb. Fig. 393 (3 b) is considered by BOURSIN to be the type and this is the form with distinct inner and outer transverse lines, similarly coloured costa and almost absent claviform stigma. — v. **ruris** Hbn. (3 b) has an indistinct claviform stigma, more faintly visible transverse lines, costal margin scarcely paler than ground colour. — v. (ab.) **hübneri** Brs. (= *fictilis* Hb. 710) (3 b ♂ type) has very distinct claviform stigma, paler costa and scarcely indicated or absent transverse lines. — v. (ab.) **villiersi** Gn. (3 c) is the pale, sometimes almost unicoloured buff form with extinct claviform stigma, absent transverse lines and similarly coloured costa. — v. **boursini** Schaw. ♂ dark brown to almost black-brown with reddish yellow, pale costal streak, ♀ dark vinous grey with pale costal streak and similar stigmata. A pale colour aberration from Corsica, which also occurs in Spain and the Apennines and probably everywhere else where *temera* occurs. All these forms do not belong to *obelisca* Hb. Mid and S. Europe, also according to BOURSIN, N. Africa, Asia Minor, Ambo. Breeding from the ova would perhaps produce clarity in regard to the above named forms, but only the early stages *temera-hübneri* are known. Ova are deposited in batches, they are yellowish without ridges. Larvae when full fed are almost without markings, similar to *hastifera* Donz. Pupa in a frail cocoon, red-brown with 2 stout spines on cremaster and besides with a few lateral chitinous bristles.
- alphonsina.* **E. alphonsina** Fdz. In this species it is certainly a case of a pale and less vividly marked specimen of *temera* v. *ruris* Hb. Captured by FERNANDEZ in June 1928 at Uclès in Spain. Whilst a pair was taken, the ♂ escaped.
- abdallah.* **E. hastifera** Donz. (Vol. 3, p. 27, pl. 5 h) (3 e). — The var. **abdallah** Obth. (= *suffusa* Fdz., *ambrosiana* Brs.) (3 c ♂ type) is the north african race of *hastifera*. It is more brightly marked, the orange of the costa and the stigmata is much more vivid, the forewings in comparison for instance with the austrian *hastifera* are much more rufous instead of dark brown. Occurs also in Spain (Cuenca). — ab. (v.) **carbonis** Warr. (Vol. 3, p. 27, pl. 6 a) belongs here according to KOZHANTSCHIKOV and not to *obelisca* Hb. These specimens originating from the Urals are said to represent the eastern subspecies of *hastifera*. The specimen illustrated in Vol. 3, pl. 6 a is a ♀ and the figure is too blackish, it should be more vinous. The ♂ has almost white hindwings. To the localities of distribution of *hastifera* in Vol. 3 we must add the Herzegovina. Ova very pale yellow, ridges faintly indicated. Larvae olive-grey with wide yellow-grey dorsal stripe; head and scutellum glossy. Pupa yellow-brown in a black earthen cocoon.
- bugaudi.* **E. bugaudi** Obth. (3 e ♂ type). Generally smaller than *obelisca* Hb. but very similar otherwise to same. Can also be compared to *hastifera-abdallah* Obth. Varies considerably in colour and marking. Can be differentiated immediately from *obelisca* by the heavily pectinated antennae, from *abdallah* by the considerably less prominently pale yellow costal margin and also the orbicular and reniform stigmata. In *abdallah* the pale costal margin is always distinctly present, in *bugaudi* much less and sometimes not all. — var. **islyana**

Obth. from the same district, seems to me to be, from a comparison of the types, only a poorly marked aberration of *bugeaudi*. Algiers, September. Early stages unknown.

E. oranaria A. B.-H. (3 c). Head, thorax and forewings luteous with brownish admixture. Costa *oranaria*. yellowish white. Orbicular stigma small, round, filled with whitish, reniform stigma darker with white edge. The dark claviform stigma distinct, median nervure sharply whitish as far as reniform stigma. Transverse lines are absent. Subterminal line whitish, sagittate marks clear, reddish streaks in outer area. Hindwings of ♂ white with darker marginal line, impure white in ♀. Underside of wings white without markings, faintly dusted with grey. Abdomen yellowish white. Algeria, April-June. Ova deposited in batches, yellowish white, not ridged. Other stages unknown.

E. distinguenda Led. (Vol. 3, p. 27, pl. 5 f). — **astfälleri** Corti (3 d ♂ type), is the mouse-grey to grey- *astfälleri*. black race from the Tyrol with margin of hindwings more or less adumbrated in the ♂, whilst the real *distinguenda* Led. almost always has pure white hindwings in the ♂ and besides is of buff or luteous ground colour. — **provincialis** Brs. (3 d ♂ cotype) is a race from S. France inclined to red-brown, hindwings of ♂ *provincialis*. almost pure white. — **cleui** Brs. (3 d ♂ cotype) from La Bassée in S. France has pure white hindwings, costal *cleui*. margin barely paler, claviform stigma whilst being distinct, is pale and not filled with black. Hindwings very pale, brownish grey. BOURSIN has nominated a further new form — ab. **praevisa** Brs. It is the form with *praevisa*. prominent transverse lines, claviform stigma almost indistinguishable and costa of uniform colour. Basses Alpes. — **uralensis** Corti (3 d ♂ type) is the race from the Urals and Sarepta, grey-brown to dark brown, *uralensis*. stumpy, hindwings of ♂ dusky at margin. Forewings very distinctly marked. Abdomen in main type form usually buff, grey-white in *uralensis*. — **distincta** Stgr. (3 d) is the race from Asia Minor, Amasia etc. with *distincta*. wide wings, clearly marked, with very pale costa, hindwings of ♂ usually pure white with slightly dusky outer margin. Early stages unknown.

E. acuminifera Ev. (Vol. 3, p. 28, 12 a) (3 e). The illustration in the main Volume is very inexact or *acuminifera*. erroneous. The species closely resembles *distinguenda* Led. and also *oranaria* A. B.-H. The wings however are much more pointed, the antennae curiously pectinated with shorter pectinations inwards and longer ones outwards, these are heavily ciliated. Russia, Turkestan, Central Asia. Early stages unknown.

E. siepii Oberth. (= *tritici siepii* Oberth. 1907, *donzeli* A. B.-H. 1910 sec. Brs.) (3 e ♂ type). Grey- *siepii*. brown, the oblique pale streak is absent, that in the *distinguenda* forms extends obliquely from claviform stigma downwards towards the outer margin. Sagittate marks are also more or less absent, costa is not pale, but of same colour as forewings. Inner and outer transverse lines blackish, very distinct, claviform stigma distinct. S. France, Plan d'Aups. September. — **donzeli** A. B.-H. (= *tritici donzeli* A. B.-H.) (3 e) is yellowish *donzeli*. grey to whitish grey, otherwise like *siepii* but the claviform stigma is absent. S. France, Digne, in September. According to BOURSIN *siepii* is related to *donzeli*, as *temera-hübneri* is to *temera*, whilst I consider that *donzeli* is a separate species and *siepii* forms a transition from *distinguenda* Led. *provincialis* Brs. and *cleui* Brs. to *mendeli* Fdz. Early stages unknown.

E. christophi Stgr. (Vol. 3, p. 27, pl. 5 h). The illustration is good only typical specimens are much paler on forewings and hindwings are considerably whiter. — **lugens** Stgr. (Vol. 3, p. 27) (3 e). *lugens*.

E. waltharii sp. n. (= *mollis mollina* Stgr. i. l.) (3 e ♂ type). Forewings brownish buff with dark basal *waltharii*. streak, claviform stigma sometimes filled with dark, sometimes with light scales, transverse lines not discernible; costa widely pale although not strikingly contrasting. Orbicular stigma somewhat oblique, pale, reniform stigma large, pale; median nervure pale from base to reniform stigma, as in *hastifera*. Hindwing of ♂ impure yellowish white. Thorax grey-brown to red-brown, abdomen of same colour as hindwings. Turkestan, Naryn, Kuldja. Early stages unknown.

E. emolliens Hmps. (= *mollis* Stgr. nec Wkr.) (Vol. 3, p. 28, pl. 6 b) (3 f).

E. amplexa sp. n. (3 f ♂ type). Looks like a dark brown *emolliens* Hmps. (3 f). A black basal streak *amplexa*. is present, that is absent in *emolliens*. The claviform stigma which is also missing in *emolliens*, is dark. Orbicular and reniform stigmata are of the same colour as forewing with black outlines. Transverse lines are absent as in *emolliens*. Hindwings impure white, slightly adumbrated towards margin. The black discoidal spot on underside of forewings which is present in *emolliens*, is absent in *amplexa*. Underside of hindwings almost white in *amplexa*, dusted with grey at margin, discoidal spot discernible. Sarepta, Altai, Issyk-kul. Early stages unknown.

E. doufanae Oberth. (3 f ♂ type). Sandy yellow, transverse lines distinct, no central shade, orbicular *doufanae*. and reniform stigmata large with whitish surrounds and not filled with blackish, a dark costal mark above each. Subterminal line indistinctly dentate, no sagittate marks. Hindwings still paler, impure yellowish white with brownish discoidal streak. Underside of wings glossy, almost unicoloured buff, discoidal spot distinct on hindwings. Discoidal area of forewings contrasting brownish. Algeria, June. Early stages unknown.

E. powelli Oberth. (3 f ♂ type). Forewings fuscous with golden sheen. Inner transverse line double, *powelli*. also the outer one, in typical specimens almost black. In ♀ a heavy central shade. The outer transverse line extends in blackish points outwards along the nervules. Orbicular and reniform stigmata indistinct with faint reddish brown centres. Hindwings of ♂ impure white, darker towards margins, more dusky in ♀. Underside of

wings almost unicoloured buff, paler in centre, a darker band on both wings, a discoidal spot on hindwings. *persubtilis*. A fine and striking species. Algeria, May-June. — *persubtilis* Corti (3 f type). Obviously the spanish race of *powelli*. It is much less brightly marked than *powelli* and varies extraordinarily. Hindwings of ♂ are throughout much darker than in *powelli*, underside of same being always more or less adumbrated, quite considerably so in ♀♀; bands are sometimes prominent, sometimes faint, but only present on forewings. The race is smaller and more stumpy than *powelli*. It stands halfway between *cos* Hbn. (Suppl. Vol. 3, pl. 4 a) and *powelli* Oberth. Spain, Albarracin, July-August. Early stages unknown.

tibetana. **E. tibetana** Mr. (Vol. 3, p. 28, pl. 12 a). Early stages unknown. According to TAMS it is a *Euxoa*.

E. haverkampfi Stdfs. (Vol. 3, p. 29) (3 g). Probably very closely related to *decora* Hbn. (Vol. 3, pl. 6 d). Possibly belonging to subgenus *Mesoeuxoa*. Corsica. A number of aberrations of this strongly varying species have been denominated. — In ab. *xanthophila* Schaw. the pale yellow is a striking grey, — ab. *leucophila* Schaw. is quite pale whitish grey, — ab. *melanophila* Schaw. denotes blackish specimens. — ab. *carola* Schaw. is a uniform dusky form, in — ab. *sagittaria* Schaw. the nervules are exceptionally heavily scaled. — Ova not yet described. Larva almost identical with *decora*, scutellum divided, more greenish coloured, punctiform warty processes more distinct. Pupation in a frail sandy cocoon, pupa with 2 cremaster spines.

deserta. **E. deserta** Stgr. (Vol. 3, p. 28, pl. 6 a, described there as *armena* Ev.) (3 g). *armena* Ev. according to FILIPJEFF is not an *Agrotinae*, but belongs to the genus *Antitype*. The specimen illustrated in Vol. 3, pl. 6 a is however the genuine *deserta* Stgr., but the illustration is not good and I am therefore illustrating same again. The description would be more exact as follows: grey-white, peppered with darker scalings, orbicular stigma usually large with grey-white centre, generally open at upper end, reniform stigma similarly large with grey-white centre, both stigmata with blackish surrounds, the area between them considerably adumbrated. Inner and outer transverse lines present, blackish. Paler specimens remind one of *cursoria* Hb., but *obscura*. they never have the yellowish tone of the latter species. Hindwings grey-white. Sarepta, Tura. — **obscura** Stgr. (3 g) is almost unicoloured dark mouse-grey, nevertheless markings and stigmata are distinct, hindwings dusky. Early stages unknown.

sigmata. **E. sigmata** Kozh. Similar to the preceding species, yellowish grey, markings distinct, 3rd transverse line unusually close to reniform stigma, orbicular and reniform stigmata closely approximated, claviform stigma only clearly discernible at distal end towards the termen, which extends to the 3rd transverse line ("sigma"). Described from a single ♀ from Tekke. Wing expanse 32 mm.

The following species mentioned in the main Volume under Section III, p. 26—28 belong to the genus *Agrolis* (Feltia): *patula* Wkr., *endogaea* Bsd., *spinifera* Hb., *cinerea* Schiff. and *pala* Hb.; *fissa* Stgr. belongs to *Mesoeuxoa*: according to TAMS *pallidifrons* Hmps. is also not a *Euxoa*.

E. humigena Pnflr. (Vol. 3, p. 28, pl. 12 a).

corporea. **E. (?) corporea** sp. n. (3 h ♂ type). Similar to *emollicns* Hmps. (3 f). Forewings purplish brown, almost unicoloured, transverse lines very indistinct, the outer one double, dentate. At margin of forewings a few dark spots. In front of the marginal line a row of dark, triangular lunules, in front of which there are obscure sagittate marks. Fringes of same colour as forewings, reniform and orbicular stigmata open towards costa with brownish edges. Hindwings impure white, dusky at margin. Fringes white. Underside glossy grey with obsolete band. Discoidal spot present. A pale marginal line on forewings. Thorax of the colour of forewings. Abdomen as hindwings. Sarepta.

homicida. **E. homicida** Stgr. (Vol. 3, p. 29, pl. 12 f). The illustration in the main Volume is not recognisable, I am therefore illustrating the ♂ (3 h) afresh. It resembles a *cursoria* Hufn. (Vol. 3, pl. 6 g) with adumbrated outer area of forewings and sometimes almost white hindwings rather than an *adumbrata* Ev. (Vol. 3, pl. 6 b). — *schahkuhensis* Bartel (3 h ♂) with paler more brightly marked forewings and antennae with somewhat longer pectinations. From Shahkuh, probably only an aberration. Asia Minor, Taurus, June. (PFEIFFER, WAGNER). Early stages unknown.

Section IV: antennae of the ♂ with very heavy tuberculate or serrate fascicles of cilia.

aquilina. **E. aquilina** Schiff. (= *fictilis* Hbn. fig. 479) (3 g ♂ and Vol. 3, p. 32, pl. 6 k). Certainly a genuine species. The antennae differ considerably from those of *tritici* L. *aquilina* is generally much larger than *tritici*, paler and much more sharply marked. Stigmata stand out very prominently, hindwings of ♂ paler, forewings characterised by an occasionally very outstanding pale streak from claviform stigma obliquely downwards towards the outer transverse line and beyond same. Is often mistaken for *distinguenda* Led., although the ♂ of this species has quite differently shaped bipectinated antennae. It varies considerably. Germany, Switzerland, Austria, Italy but probably still more widely distributed. Occurs in Asia Minor and Asia in a number of races that are difficult to distinguish. Early stages not described. — *falleri* Schaw. (= *falleri* Corti i. l.) (3 g ♀ type) is the race of *aquilina* from Corsica. It also varies considerably and is generally very brightly marked. Hindwings of ♂ generally pure white. SCHAWERDA has denominated an aberration solely of coloura-

tion with pale vinous forewings as ab *vinosa*. — *rabiosa* var. nov. (3 g ♂ type) is a nice race from central Asia *vinosa*. usually with very distinct markings, white dentate line behind the sagittate marks and fairly pale costa. *rabiosa*. Issyk-kul, Juldus, Saisan, Tokmak, Aksu. — *distincta* Stgr. (3 h ♂) (= tritici v. *distincta* Stgr., Vol. 3, p. 32) *distincta*. is the race from Asia Minor with almost pure white hindwings. Was formerly often mistaken with *distinguenda* Led. v. *distincta* Corti. — *obscurior* Stgr. (3 h ♂) (= tritici v. *obscurior* Stgr., Vol. 3, p. 32) is the *obscurior*. blackish, sometimes almost completely black race from Ussuri. Markings clear, dark, hindwings also in ♂ very heavily adumbrated, especially at margin. According to FILIPJEV = *oberthüri* Leech (Vol. 3, pl. 7 c) which however has different antennae.

E. titschacki Corti (3 i ♂ cotype). Pale rufous, markings deeper rufous, costa slightly paler, orbicular *titschacki*. stigma oblique, irregular, often open towards costa, median nervure pale from base to reniform stigma, sagittate marks distinct, situate before a more or less distinct pale subterminal line. No discoidal spot either on upper or underside, faintly indicated in ♀. Tegulae with darker collar. Head and thorax of the colour of hindwings. Jerusalem, Valley of the Jordan, Askhabad. Early stages unknown.

E. quassa nov. spec. (3 i ♀ type). Similar to *titschacki* but with rounder wings, darker and more diffuse *quassa*. markings, subterminal line scarcely indicated. Discoidal spots present. Sarepta, Naryn. Early stages unknown.

E. glabella Wgnr. (= *glabella* Corti i. l.) (3 i ♂ type). Forewings almost pale luteous in ♂, darker *glabella*. in ♀. Costa pale, sandy coloured, darker in ♀, claviform stigma buff with black-brown surround, sagittate marks faint but distinct, reniform and orbicular stigmata with sandy-yellow centres, darker surrounds, hindwings pure white in ♂ scarcely darker in ♀. Underside similarly white, also on forewings. Armenia, Naryn. Early stages unknown.

E. wagneri Corti (3 i ♂ type). This nice species resembles certain forms of *subdistinguenda*, but can *wagneri*. be differentiated at once by the form of the antennae of ♂. Also this species varies considerably. The oblique stripe described under *aquilina* is present, the colour is generally a nice dark, black-brown on pale ground. Costa white intermixed with brown. Reniform and orbicular stigmata white with brownish centres and black surrounds. White spots on costa, sagittate marks distinctly present. Hindwings white in ♂, veins and margin brownish, a discoidal spot is present. Thorax dark black-brown sprinkled with whitish. Underside pale, discoidal spots distinct. Tarsi with white ringlets. Albarracin, Spain. August. — Ova yellowish white without ridges, hibernate with embryo developed, larvae very similar to those of *subdistinguenda* Corti, typical subterraneous larvae pupating in a fragile cocoon. Pupa pale buff with two diverging cremaster spines.

E. schwingenschussi Corti (3 i ♂ type). Is best placed here and is probably closely related to *aquilina* *schwingenschussi*. *Hb.* although the pectinations of the antennae are shorter and also shorter than those of *wagneri*. Ground colour is a pale buff, claviform stigma elongate, black-brown. Median nervure pale brown from base to reniform stigma. Costa pale brown. Sagittate marks more or less present. Hindwing of ♂ grey-white, darker at margin. Thorax of same colour as hindwings with black scales. Underside of both wings grey-white and glossy. Hindwings with a dark, large, triangular longitudinal shade in the middle. Castile, Teruel, Spain. — Ova yellow grey without ridges, laid in batches. Larvae typical subterraneous larvae, very similar to *temera-hübneri*. Pupa glossy, fuscous without cocoon with 2 strong spines and 2 smaller ones on dorsum.

E. actinea Kozh. (= *distaxis* Brs., *obeliscata* Corti i. l.) (3 k ♂ cotype). Is doubtless closely related to *actinea*. *aquilina* Schiff. Costal margin pale, colour yellowish brown, orbicular and reniform stigmata distinct with black surrounds and pale grey-brown centres. Claviform stigma dark, distinct. Sagittate marks present as also is the pale oblique streak from claviform stigma obliquely to the outer transverse line. Transverse lines sometimes distinct, sometimes almost obsolete. Hindwings white with grey admixture at margin and dark subterminal line. Underside of hindwings almost white with distinct discoidal spot. Thorax of same colour as hindwings. Abdomen whitish. June-July, Turkestan, Naryn, Issyk-kul, Urals, Asia Minor. Possibly belongs to subgenus *Mesoeuxoa*. Early stages unknown.

E. terrestris sp. n. (= *terrena* Corti i. l.) (3 k ♂ type). A species classified in many collections as *terrestris*. *sabuletorum* Bsd. Unicoloured earthy brown. Markings as a rule only faintly discernible. Sagittate marks at the best only indicated. Claviform stigma faint, usually almost extinct, orbicular and reniform stigmata faintly marked, costa barely paler. Hindwings of ♂ as well as ♀ impure pale brown, considerably adumbrated from margin inwards. Abdomen of same colour as hindwings. Early stages unknown. S. Russia, Urals, Sarepta, Djarkent. July.

E. marcens Chr. (Vol. 3, p. 29 under *decora*). According to HAMPSON and WARREN synonymous with *marcens*. *decora* Schiff. I had a ♂ before me ex the PÜNGELER Collection from Kasikoparan, Armenia. This is where CHRISTOPH had obtained his original specimens, which had been captured by KORB and classified as *marcens* when sent to PÜNGELER. The specimen however is identical with the preceding *terrestris*. According to the illustration of KOZHANTSCHIKOV, Ann. Ms. Zool. Acad. Se. URSS. 1929, Pl. XXVI, fig. 41, *marcens* can well be related to *decora*. The transverse bands and the pale hindwings indicate this. KOZHANTSCHIKOV treats *marcens* as a separate species.

- monotona*. **E. monotona** Kozh. Described by KOZHANTSCHIKOV from a single ♀ from Naryn, July 1908 and illustrated in the Ann. Ms. Zool. Acad. Sc. URSS. 1929, Pl. XXIV, fig. 17. Is said to most closely resemble *marcens* Chr. Forewings grey, markings indistinct. Interstices between the lines much smaller than in *marcens*. All nervures dark. Orbicular stigma almost black, claviform stigma faint, reniform stigma indiscernible. Hindwings pale grey, a dark band at margin, fringes white. Underside grey-white, forewings darker than hindwings.
- recussa*. **E. recussa** Hb. (Vol. 3, p. 32, pl. 6 k) (= *telifera* Donz.; *florigena* Ev.; *transsylvanica* H.-S.). Illustration too blue-violet, it should be considerably more fuscous with vinous suffusion. Specimens from the Ili territory, Altai, Naryn etc. are much paler, sometimes quite brownish yellow. Ova globular, irregular, pale sulphur yellow without ridges. Larva typical subterranean larva, pupa yellow-brown with two delicate cremaster spines.
- uncarpa*. **E. uncarpa** Kozh. Illustrated Ann. Ms. Zool. Acad. Sc. URSS. 1929, pl. XXVI, fig. 40. Very similar to *recussa* Hbn., but more inclining towards the *hilaris-foeda* group. Grey with no admixture of brown. In contrast to *recussa* the basal line near the dorsum under the claviform stigma is angulated and not straight. The terminal border of reniform stigma is almost straight, slightly bent inwards, whilst in *recussa* it bulges sharply outwards. Area between the submarginal and terminal lines narrower than in *recussa*. Hindwings unicoloured grey. Caucasus, where according to KOZHANTSCHIKOV *recussa* does not occur. In August.
- enixa*. **E. enixa** Pnglr. (Vol. 3, p. 31, pl. 6 h). Hindwings somewhat paler than in illustration, which otherwise is quite good. Many specimens have hindwings just as dusky as medium coloured *nigricans*. Early stages unknown.
- culminicola*. **E. culminicola** Stgr. (Vol. 3, p. 30, pl. 6 c). Without a direct transition from *recussa*, as the next following species. Varies considerably. The specimen illustrated in the main Volume l. c. is very dark. Specimens occur of almost orange yellow colour, again with almost unicolourous grey and all intermediate shades. Also markings vary, for instance the transverse lines vary considerably. Sometimes they are very distinct, at others almost extinct. Similarly the stigmata. Besides occurring in the Tyrol and Switzerland, also occurs in Italy (Apennines, DANNEHL) and in S. France (Larche, STRUVE). It is a high mountain insect. — ab. **robiginosa** Dhl. denominates specimens with bright fuscous to bronze coloured ground colour. — Early stages: Ova deposited singly or in batches, yellow-white without ridges. Larva typical subterranean larva, maggot like, dorsal and subdorsal scarcely perceptible, ashy grey, punctiform warts indistinct. Pupa pale brown with 2 cremaster spines in a frail earth cocoon.
- canariensis*. **E. canariensis** Rbl. (Vol. 3, p. 28, pl. 6 b). The illustration is too fulvous, the stigmata usually have much paler centres, hindwings similarly are paler grey. I am illustrating the species again (3 k ♂) Tenerife. February-March. — **arefacta** Rbl. according to the author denominates the form from the eastern Canary Islands, paler, brownish, hindwings of ♂ pure white, without outer arched line on underside. East Canary Islands, Fuerteventura. February. Early stages unknown.
- nevadensis*. **E. nevadensis** Corti (3 k ♂ type). Similar to *canariensis* Rbl. and *conspicua* Hbn. and about the same size as former. Less brightly coloured than *canariensis*, inner transverse line almost straight, hindwings unicoloured white-grey. Sierra Nevada, Spain. June-July. Early stages unknown.
- conspicua*. **E. conspicua** Hbn. (Vol. 3, p. 31, pl. 6 h). The ♂ illustrated there figures a specially grey and clearly marked specimen. Generally *conspicua* is more brownish to brown, markings sometimes very diffuse and scarcely discernible. The species varies considerably, compare for instance the aberration designated *abscondita* Warren illustrated on pl. 6 i in main Volume. According to KOZHANTSCHIKOV it occurs also in Japan, besides the countries mentioned in main Volume. Flight in May-July, in Asia Minor also in October, therefore clearly in 2 generations. Early stages unknown.
- osthelderi*. **E. osthelderi** sp. n. (3 k ♂ type). A large species reminding one of *conspicua* Hbn. but probably more closely related to *aquilina* Schiff. (Vol. 3, pl. 6 k). Varies in colouration from mouse-grey to reddish brown, also in markings. Costa more or less paler. Claviform stigma usually very outstanding, generally there is a double inner and outer transverse line, also a pale oblique streak from claviform stigma towards the outer transverse line. Sagittate spots as a rule very prominent. Orbicular and reniform stigmata similarly with whitish centres. Hindwings uniform grey-brown with wide whitish margin. Underside of wings glossy grey-white, shaded duskily in discoidal area of forewings, hindwings with distinct discoidal spot. Turkestan, Kyssyl-Yart, Ili territory, Saisan. Early stages unknown.
- proleuca*. **E. (?) proleuca** Hmps. (Vol. 3, p. 27, pl. 5 f). Highly probably a genuine *Euxoa*, according to TAMS the abdomen of the type is broken, antennae identical with those of *obelisca*. A deep crater on the clypeus.
- obelisca*. **E. obelisca** Schiff. (Vol. 3, p. 27, pl. 5 h). A difficult group of forms, which still requires research. The ab. *ficilis* Hbn. (HÜBNER's fig. 710) (Vol. 3, pl. 5 i) illustrated in main Volume is no *obelisca* form. It belongs to the *temera* group = v. *hübneri* Brs. The ab. *ruris* Hbn. (Vol. 3, pl. 5 i) should also not be grouped to *obelisca*, but to *temera* (vide there), similarly the ab. *villiersi* Gn. (Vol. 3, pl. 5 i). The illustration in question is unrecognisable, compare pl. 3 c. Whilst *obelisca* does not vary very greatly, it is often very difficult

to separate certain forms from *tritici*, *aquilina* and *vitta*. The spanish specimens seem to form a separate race. The ab. *carbonis* Warr. (Vol. 3, pl. 6 a) is a form of *hastifera* Donz. (vide there). — **corsicola** Corti (31 ♂ type). *corsicola*. A very nice local race occurs in Corsica concurrently with type form. Generally smaller and much more brightly marked, colour more inclined to be grey to grey-brown, the light transverse bands well developed. Costa and stigmata a delicate yellowish like the transverse bands, subterminal line absent or very faint, outer marginal area very dusky. Corsica, July. SCHAWERDA suspects this form is a separate species. In the main Volume its occurrence is referred to as "except Great Britain and Scandinavia." I possess a series of specimens from England and have also seen some from Scandinavia (Nordström), which cannot be differentiated from *obelisca*. Except the larva and pupa which are similar to those of *tritici* L., the early stages are unknown.

E. vitta Hbn. (Vol. 3, p. 33, pl. 7 b). The illustration represents a ♀, I am illustrating a ♂ (31) from *vitta*. Hungary. This is a much debated and in my opinion doubtful species. In my collection I have british (Forbes), french (Larhe) and german (Gonsenheim) specimens which I am unable to differentiate from hungarian specimens. The same difficulty with specimens from Kuku-Noor. Further *vitta* is reported from Transylvania and Bosnia (SPULER). A relationship with *tritici-obelisca-recussa* is obvious. The species should be revised. It is quite likely that the specimens occurring in the Tyrol form a good local race. July-September. Ova irregular, deposited separately or in batches, yellow-grey without ridges. Larva typical subterraneous larva, similar to those of *temera*, *hastifera* and *eruta*. Pupa yellow-brown to red-brown with 2 diverging short cremaster spines.

E. hemispherica Hmps. (Vol. 3, p. 26, pl. 12 a). According to TAMS a genuine *Euxoa*. Antennae as *hemispherica*. *obelisca* Schiff. Cyprus.

E. (?) westermanni Stgr. (31 ♀ type). Great confusion prevails in literature in regard to this species. *westermanni*. In the main Volume (Vol. 3, p. 50, pl. 11 b) it is indicated as *westermanni* = *wockei* Mschl. = *scropulana* Morr. which is incorrect. What WARREN described and illustrated is *scropulana* Morr. = *moeschleri* A. B.-H. but not *westermanni* Stgr. The type of *westermanni* Stgr. is in the Museum at Copenhagen. According to HENRIKSEN it has a projection on the clypeus and can therefore not be a *Euxoa*. I am illustrating the species from a ♀ from Labrador, which I hold to be the genuine *westermanni*. — **polaris** A. B.-H. which I have *polaris*. examined, also has a projection on clypeus, the genital apparatus could unfortunately not be examined. The specimen illustrated shows the projection on clypeus, but there is no actual crater. American authors (McDUNNOUGH) also consider *westermanni* to be a *Euxoa*. Until further material is available it will be difficult to decide this question.

Section V: Male antennae heavily pectinated, pectinations ciliated (length of pectinations and extent of ciliation varies).

E. cursoria Hufn. (Vol. 3, p. 30, pl. 6 g). A species subject to extraordinary variation and this has *cursoria*. given the opportunity for a number of denominations denoting aberrations. Besides almost unicolourous ochreous forms, forms occur through grey to brown and rufous. Markings also vary to an extraordinary degree, specimens occur almost devoid of markings and again with most pronouncedly contrasting markings, almost white costa, very distinct stigmata etc. Probably the almost red-brown form from Berlin, the Baltic Provinces, Russia and Sarepta and also in England and denominated hitherto as ab. **obscurior** Stgr. (31 ♂ type) is *obscurior*. a definite variety. The variety *currens* Stgr. which is generally darker, more sharply marked and less subject to variation (31 ♂) occurring in Ulias, Korla, Ili territory, Transbaikal, is according to FILIPJEV synonymous with *detorta* Ev. According to KOZHANTSCHIKOV the ab. *sagittata* Stgr. (= *sagitta* H.-S. [4 a ♂]) is a genuine separate species. The ab. *vaga* from Ulias established by STAUDINGER is a variety of *adumbrata* Ev. (Vol. 3, p. 28, pl. 6 b). Although TUTT has introduced already a number of unnecessary denominations for aberrations, still more have been added. — f. **mülleri** Hänel is a *sagittata* without inner and outer subterminal *mülleri*. lines. — f. **nigrovittata** Hänel, buff, interstice between inner and outer subterminal lines dark brown. The *nigro-* dark colour extends to inner margin, area above subcostal nervure yellowish. — f. **nigrescens** Hänel is black- *vittata*. brown with exception of a delicate pale yellow edge to orbicular and reniform stigmata, as well as submarginal line. — *cursoria* occurs chiefly on sand and particularly in coastal regions. However it is found in the Valais and further besides the localities mentioned in the main Volume, also in the roman Campagna (DANNEHL) and in Dalmatia (RIBBE).

E. (?) inclusa sp. n. (4 a ♂ type). Pale reddish brown, sagittate marks distinct, outer and inner *inclusa*. transverse lines double, the former forming a sharp angle outwards towards the inner margin. Subterminal line pale, distinct, dentate. Orbicular and reniform stigmata pale, brownish with dark area between them. Marginal line consisting of dark lunules. Fringes same colour as forewings. Hindwings unicoloured brown, fringes paler. Underside uniform pale brown with faint band on both wings, slightly heavier on hindwings, a marginal line formed of small lunules, discoidal spot very distinct especially on hindwings. Persia.

E. (♂) beatissima Rbl. Perhaps best classified here. Similar to *conspicua* Hbn. (Vol. 3, pl. 6 h) and *beatissima*. also to *canariensis* Rbl. from which however it can be immediately differentiated by the shorter pectinations

of the antennae. Ground colour of forewings vinous brown, stigmata larger than in *canariensis*. Thorax vinous grey. Forewings very elongated, stigmata with pale vinous grey centres. Orbicular stigma very elongate. A black streak extends from base, claviform stigma indistinct, subterminal line indistinct. Marginal line fine, black. Hindwings brown-grey, paler in ♂. Teneriffe. Early stages unknown.

catervaria. **E. catervaria** Corti (4 a ♂ cotype). I introduce this species here, as it may be the original form from which the following *cos* Hbn. evolved although it has antennae with heavier pectinations and denser cilia than *cos*. Similar to this species, forewings wider, hindwings larger and rounder, fringes of forewings paler, limbal line much clearer, outstanding and yellowish. As a rule a distinct collar. ♀ like the ♂, hindwings somewhat darker. Kuku-Noor, Alexander Mountains, Korla, Tien-shan. Early stages unknown.

cos. **E. cos** Hbn. (Vol. 3, p. 31, pl. 6 i) (4 a ♂) (= *tephra* Bsd., *nagyagensis* Frr., *vacillans* H.-Schäff.).

Subject to fairly heavy variation and a number of aberrations have been named. The illustration in the main Volume is too pale, it figures the v. *millieri* Stgr. I am therefore illustrating *cos* again. *cos* is a southern species, it occurs besides in the lands mentioned in the main Volume also in Bosnia, Transylvania, Herzegovina, the Hungarian Carpathians, Tunis (WARREN). — *millieri* Stgr. is in my opinion identical with v. *crimaea* A. B.-H. and v. *mesopotamica* O. B.-H. i. l. *millieri* is much paler than *cos*, the black spots of transverse band on costa stand out more clearly, the head is more whitish and hindwings similarly much paler (greyer) than

millieri. in *cos*. Crimea, S. Russia, Syria, Italy (Abruzzi, Sicily), S. France. — The form **cycladum** Stgr. (4 a ♂) originates from Greece (Naxos) but specimens from Italy (REBEL), the Adriatic Islands (GALVAGNI), Algeria and Spain

cycladum. can also be classified here. Smaller, forewings reddish grey. — In regard to the form **aphe** Mab., which probably belongs to *cos*, nothing fresh can yet be said. The type is completely defective. New denominations of aberrations are as follows: — f. **unamunoi** Fdz. very pale and quite unicoloured, a mere colour aberration of *cycladum*. — ab. **erubescens** is the name given by DANNEHL to specimens of *millieri* with pale red tone and faint markings from Italy and — ab. **purificata** denotes specimens flying concurrently, which are almost completely without markings, only a minute trace of the surrounds of the stigmata being still discernible. Of the early stages there is no description of the ova and pupa. The larva resembles that of *decora* Schiff.

punctifera. **E. punctifera** nom. nov. Corti (= *squalida* Ev. nec Gn.) (Vol. 3, p. 32, pl. 7 a). The illustration is good. *punctifera* is in my opinion a genuine species that varies little and does not belong to *sabuletorum* Bsd. Forewings grey-brown almost unicoloured with dusky spot markings towards outer margin. Orbicular and reniform stigmata scarcely visible with faint white edges. A dark spot or streak on the median nervure below the reniform stigma is characteristic. A dark costal spot often occurs above the reniform stigma. Hindwings rarely almost white, usually with heavy adumbration, especially along the veins. Underside of wings with distinct discoidal spots. S. Urals, Sarepta. Early stages unknown.

sabuletorum. **E. sabuletorum** Bsd. (Vol. 3, p. 32, pl. 7 a). The illustration is not good, it would be better as figuring a form of *aquilina*. I am therefore having the ♂ type of BOISDUVAL illustrated on pl. 4 b. Forewings unicoloured brownish grey, orbicular and reniform stigmata distinctly prominent by their blackish edges, claviform stigma of same colour as wings, faintly edged by darker line. A few dark spots on costa of forewings. A line of black crescent marks in front of margin of fore and hindwings. Hindwings pure white with faint discoidal spot. Underside of forewings brownish with a faint arched line and very distinct discoidal spot, hindwings impure white with small dark discoidal spot. Sarepta, also from the Altai according to KOZHANTSCHIKOV, Central Asia, Turkestan, Ili, Issyk-kul. Early stages unknown.

foeda. **E. foeda** Led. (Vol. 3, p. 32) (= *nigrina* Stgr.). According to KOZHANTSCHIKOV's, FILIPJEF's and my own opinions, is a separate species from *sabuletorum* Bsd. and is a genuine species. Illustration 4 b ♂. Similar to *sabuletorum* Bsd. forewings almost unicoloured grey-brown, inner and outer transverse lines distinct, dark, especially the double inner line. Orbicular and reniform stigmata only faintly prominent. Hindwings white or impure white. Discoidal spot absent or only faintly indicated in the specimens in my collection. Underside of forewings paler than in *sabuletorum*, otherwise the same. Underside of hindwings white with brownish dusting. Discoidal spot faintly visible. Sarepta, also Altai, Caucasus, Crimea, according to KOZHANTSCHIKOV. Early stages unknown.

robiginosa. **E. robiginosa** Stgr. (Vol. 3, p. 29, pl. 6 c). Forewings almost unicoloured pale to dark red-brown with obsolete markings, stigmata indistinct with dark edges, transverse lines rarely occur and when they do only faintly. A blackish limbal (lunule) line before the pale fringes. Hindwings of ♂ almost pure white, much darker in ♀. Thorax as forewings, abdomen grey-white. Underside of forewings glossy light grey-brown with extinct dark median spot and darker transverse line. Underside of hindwings impure white in ♀, generally darker outwardly. Palestine, October-November. The illustration in the main Volume illustrates a heavily marked specimen. Early stages unknown.

heringi. **E. heringi** Stgr. (Vol. 3, p. 29) (4 b ♂). Similar to the former species but paler, not reddish but grey-brown. Basal and outer transverse lines and also reniform stigma generally dark, sometimes however quite

absent, outer margin somewhat darker, grey. Similarly marked to *decora* Schiff. Hindwings impure white with dark outer margin, underside mostly quite unicoloured impure white. In isolated specimens there is a dark discal lunule and a dark transverse line beyond same on underside of forewings. N. Persia, Pontus, end of July. — **signata** Stgr. from Asia Minor, Zeitun is more heavily marked (al. ant. distinctius signatis) but this *signata* may be only an aberration. Early stages unknown.

L. decora Schiff. (= *nebulosa* Hbn. nec *marcens* Christ.) (Vol. 3, p. 29, pl. 6 d). Subject to great varia- *decora*. tion and has therefore given rise to numerous denominations denoting aberrations. The most generally named — ab. **livida** Stgr. is mentioned by the author as a variety (multo obscurior, al. ant. obscure plumbeo-griseis, *livida*. al. post. nigrescenti-griseis). This is said to be the form from the Swiss Alps and Caucasus, but *livida* occurs everywhere where *decora* occurs and is certainly only a colour variaton. On the other hand — **splendida** *splendida*. Trti. and Vrtty. (= *albidecora* S.-R., *calcaria* Dhl. i. l.) (4 b ♂) from Central Italy (Abruzzi etc.) is a good variety. It is the almost silvery white form of *decora*. Now and then same is adumbrated to a leaden grey, but never of the same colour as alpine forms. Also in the darker specimens, head and thorax retain their silvery white. The form also occurs in S. France (Digne, Larche). — **decorata** Neuburger is certainly only an *decorata*. aberration, unless perchance the *decora* from Vienna form an actual local race. The specimens generally have wider wings and are paler than alpine insects. — f. **nivalis** And. pale grey, somewhat yellowish, stigmata *nivalis*. with distinct edges and — ab. **flavorenalis** Bub. with all wings glossy smooth leaden grey without greenish *flavo-* colouration, both pure colour aberrations, as also — ab. **flavomaculata** Schaw. specimens with distinct yellow *renalis*. stigmata. — **simplex** Trti. and Vrtty. is a unicoloured pale pearly grey form without transverse lines and stig- *flavo-* *maculata*. *simplex*. mata from the Italian Maritime Alps. To be added to the localities named in the main Volume we must in- clude the Pyrenees, Bosnia, Herzegowina, Caucasus, Urals, Spain (Sierra Nevada), Moravia and Lappland (RIBBE). Ova grey-brown or earthy grey without ridges. Larva typical subterraneous larva, yellowish grey with dark dorsal line, small dark warts and black stigmata. Pupa according to WILD red-brown with 2 cre- master spines in an earthen cocoon.

E. decorans Stgr. (Vol. 3, p. 40). (4 b ♂) (According to WARREN = *nyctimerina* Stgr., *subdecora* Stgr. *decorans*. Iris IX, p. 353.). Is a genuine *Euxoa* but somewhat doubtful species. Not identical with *nyctimera* (Vol. 3, p. 51 as *simulatrix* Hbn., pl. 12 e) which is not a *Euxoa*. Clearly related to *decora* Schiff. or even more so with *birivia* Schiff. However the pectinations of the antennae are somewhat shorter and the cilia more directly attached to the shaft. Colour as *birivia*, stigmata yellowish, tegulae yellowish. Uliassutai.

E. parnassiphila Stgr. (Vol. 3, p. 29).

E. birivia Schiff. (Vol. 3, p. 29, pl. 6 c) (= *honoratina* Donz. nec. *dolis* Grote). Besides the countries *birivia*. of origin mentioned in the main Volume it also occurs in the Crimea (KOZHANTSCHIKOV), Armenia (STAUDINGER?), Illyria (STAUDER), Bukowina, Galizia, Bavaria, Regensburg (JÜNGLING). *birivia* occurs in the Alps and also in the plains. Flight July-August. Early stages unknown. — *taurica* Stgr. should be withdrawn according to the type of STAUDINGER, as this is a ♀ specimen belonging to *sollers* Chr. Under this designation specimens which were fairly unicoloured and which emanated from Asia (Issyk-kul, Naryn, Aksu etc.) were offered by dealers and which should be classified to the form — **flavisignata** Stgr. i. l. which is however *flavi-* *signata*. without yellow stigmata. Such specimens however often occur under *flavisignata*. There is no doubt that *flavisignata* is a genuine race, I am illustrating a striking ♂ (pl. 4 c). This form is subject to considerable variation in marking and colouration. — **plumbina** Wgnr. (= *Agrotis plumbina* Wgnr.) (pl. 4 c ♂ cotype) from the *plumbina*. Ili territory, I do not hold to be a separate species, but at the best a race of *birivia*. Markings somewhat diffuse, hindwings in ♂ sex brownish. The almost pure white body hairs etc. of *birivia* are here a pronounced brownish, antennae somewhat more slender, less heavily pectinated. — **sueticola** Skala from the Sudetes with *sueticola*. “colouration of forewings inclining to yellowish” I deem to be a simple aberration in spite of its “isolated occurrence”. Such yellowish specimens also occur in the Valais etc. Early stages unknown.

E. fraudulent Corti (4 c ♀ type). Similar to *birivia* Schiff. but much larger. Wings wider and rounder. *fraudu-* *lenta*. Inner transverse line double, claviform stigma elongate, sulphur-yellow mixed with grey, similarly the orbicular and reniform stigmata. The latter large and diffuse. Outer transverse band double, heavily dentate, irregular. Dark crescents before the margin. Hindwings unicoloured grey-brown. Underside of wings glossy grey, hindwings with fairly heavy arched band and distinct discoidal spot. Tarsi with pale and dark ringlets. N. Thibet, Kuku-Noor.

E. cuprina Stgr. (= *glabra* Corti i. l.) (Vol. 3, p. 42, pl. 12 c) (4 c ♂). The illustration in the main Volume *cuprina*. is not good and I am illustrating the species afresh. It is a genuine *Euxoa* and should be classified close to *birivia*, markings are very similar, but it has coppery brown forewings. Korla, Central Asia; August.

E. (?) sublata sp. n. (4 c ♂ type). Smaller than *birivia*, similar in form and marking. Forewings reddish *sublata*. brown and unicoloured except for the stigmata. Outer transverse and subterminal lines faintly indicated. Orbicular stigma small, round, of same colour as wings but with pale yellowish edge. Reniform stigma larger

of the same colour and edge. A pale marginal line, fringes of same colour as wings. Hindwings almost unicoloured, heavily adumbrated, somewhat paler in median area. Distinct discoidal spot. Fringes impure white. Underside almost plain grey-white. Forewings with a shade, discoidal spots indistinct. Altyn-tag, Alexander Mountains, Aksu.

achyricola. **E. (?) achyricola** sp. n. (4 d ♂ type). Similar to *decora* but smaller. Forewings narrower, more pointed, inner transverse line situate further outward. Hindwings impure white, thorax pale grey. Underside of wings much paler than in *decora*, arched stripe almost completely absent. Northern Syria, Marash; July (PEIFFER).

The following species classified as *Euxoa* in the main Volume under Section IV, p. 28 etc. do not belong here but to subsequent Genera: *submolesla* Er., *cursoriodes* Hmps., *riguraca* Pglr., *moechilla* Pglr., *subdecora* Stgr., *clauda* Pglr., *griescens* F., *parnassiphila* Stgr., *eucuna* Pglr., *decorata* Stgr., *simplonia* Stgr., *constanti* Mill., *trux* Hb., *seditiona* Pglr., *nili* Baker, *nigrita* Graes., *solida* Ersch., *tristis* Stgr., *sulcifera* Chr., *arenosa* Stgr., *lidia* Cr., *xanthoides* Hmps., *honesta* Stgr., *duosigma* Hmps., *informis* Leech and *exclamationis* L.: on the other hand *oberthüri* Leech, *intraeta* Wkr. and *impera* Pglr. are *Euxoa* of the following Section:

Section VI: antennae of the ♂ with short pectinations with cilia.

The following species without a direct transition from the last species of the preceding Section.

intolerabilis. **E. intolerabilis** Pnglr. (Vol. 3, p. 31, pl. 6 h) (= *percurrens* Corti i. l.) The illustration is good, only as a rule the markings are less distinct and the colouration more monotonous. Early stages unknown.

predolae. **E. predotae** Schaw. (4 d ♂). Somewhat like *intolerabilis* Pnglr. and still more like *fissa* Stgr. but differs from the latter by the more pronounced markings and a violet golden colour tone. Antennae are coarser and thicker than in *intolerabilis* and *fissa*. Transverse lines double, a dark marginal band is present, that is absent in *intolerabilis*. Claviform stigma scarcely indicated. A few small yellowish spots on costa of forewings. Hindwings grey-brown with distinct discoidal lunule. Underside of wings almost unicolourous dark grey with distinct arched band and dark discal lunule on hindwings. Ussuri, Siberia, Mongolia (Urga, Kozh.). August-September. Early stages unknown.

nigricans. **E. nigricans** L. (Vol. 3, p. 30, pl. 6 h). (= *fumosa* Hbn., *rustica* H.-S., *ursina* Godl., *fuliginea* Hbn., *carbonea* Hbn., *uniformis* Rgt., *oppidicola* Krul. sec. KOZHANTSCHIKOV and FILIPJEF). The specimen illustrated in the main Volume is a relatively reddish one, as a rule *nigricans* is much darker, very often quite black, so that the markings are scarcely discernible. *nigricans* varies in colour and marking quite considerably, so that a large number of aberrations have been denominated (vide main Volume). Chiefly it is the transverse bands and the stigmata that vary, sometimes they are absent, sometimes more or less visible, now black and again white or orange or prominent in some other way. The most striking form is — ab. (ab. et var. sec. Stgr.) *rubricans* Esp. with pale reddish wings. This form occurs everywhere among *nigricans* and is therefore simply an aberration. Perhaps the Japanese *nigricans* forms a genuine subspecies. They are larger, darker, very often with reniform stigma with red or reddish centre. It occurs besides in Central Europe, in England and W. Asia, also in Spain, Italy, the Balkans, Urals and E. Asia. Of the early stages, the ova are not described. The brown pupa in an earthen cocoon with 2 cremaster spines.

nyctopis. **E. (sec. TAMS) nyctopis** Hmps. (Vol. 3, p. 31, pl. 6 i). The illustration is too grey, the colour should be much more red-brown, the markings are too distinct. The species is perhaps only a reddish *nigricans* race from Kashmir. The form mentioned by HAMPSON as ab. 1 with dark brown forewings and transverse lines edged with whitish has been named — **kuijarensis** by STRAND.

adumbrata. **E. adumbrata** Ev. (Vol. 3, p. 28, pl. 6 b). Related to *nigricans* and *tritici*. KOZHANTSCHIKOV considers *adumbrata* to be a subspecies of *lidia* Cr., which is erroneous, *lidia* has quite different antennae and entirely different genital organs than *adumbrata*. On the other hand I am of the same opinion as CHRISTOPH and SPULER that the v. *polygonoides* Stgr. (Vol. 3, p. 28) is a genuine separate species. — **vaga** Stgr. (Vol. 3, p. 30) (4 d ♂) (= *integra* Corti i. l.). This form, hitherto always classified as a variety of *cursoria*, should actually be classified to *adumbrata*. It is a completely pale brown, almost luteous form of *adumbrata*. STAUDINGER already questioned whether *vaga* should be placed with *cursoria*. The variety originates from the Uliass and also Tibet. The early stages of *adumbrata* are unknown, GRAESER thinks he can remember that the larvae have great similarity to those of *jennica* Tausch. Flight: June-July.

latebrosa. **E. latebrosa** sp. n. (4 d ♂ type). Similar to *adumbrata* but much paler, almost pale grey, the markings much more distinct, stigmata with white centres, margin of forewings grey, of hindwings white. The latter also in ♀ sex much paler, sometimes completely white in ♂. Claviform stigma almost always distinct, blackish to black, the cell between orbicular and reniform stigmata filled with black creating a likeness to *recussa*. No sagittate spots present. Naryn, Turkestan. Early stages unknown.

goëtria. **E. goëtria** Kozh. (4 d ♂). Antennae of ♂ with rather frailer cilia than *adumbrata*. Very similar to this species, has a dark, sharply outlined streak from base of forewings to beyond claviform stigma. Orbicular and reniform stigmata edged with black outwardly, with white inwardly, orbicular stigma is open at upper end. Transverse lines more or less distinct, sagittate spots almost always present. Hindwings grey, at base

paler, whilst being darker in outer area. Underside of hindwings with heavy discoidal spot and a dark arched stripe. A very variable species. Semipalatinsk, Siberia (KOZHANTSCHIKOV), Aksu, Issky-kul, Ulias, Turkestan (CORTI).

E. phantoma Kozh. According to KOZHANTSCHIKOV himself this can scarcely be differentiated from *phantoma*, *adumbrata* Ev., nevertheless he separates same on account of minute differences in the ♂ genitalia and because of the erroneous impression that *islandica* and *adumbrata* have filiform antennae. In my opinion certainly synonymous with *adumbrata*. S. E. Siberia, July-August.

E. sjöstedti Corti (4 e ♀ cotype). Outwardly resembles *obscura* Brahm but it is a genuine *Euxoa*. Fore- wings reddish brown with faint dark markings. Basal line and streak barely visible, inner transverse line double, heavily dentate, claviform stigma indistinct, orbicular stigma large sometimes filled with greyish white, reniform stigma very large. Outer transverse line dentate. Hindwings pale grey, much adumbrated towards outer margin. A distinct discoidal spot. Underside almost unicoloured grey-brown. A large pale brown discoidal spot on hindwings. Kamschatka, August.

E. polygonides Stgr. (Vol. 3, p. 28) (4 e ♂). Compare under *adumbrata*. Antennae considerably more shortly serrate and ciliate than in *adumbrata* Ev. Pale grey-brown, lines very clearly outlined. Sagittate marks present. — ab. **obscura** according to STAUDINGER denotes dark specimens. Caucasus, Issyk-kul, Ili (v.).

E. tritici L. (Vol. 3, p. 32, pl. 6 k). On account of the extraordinary degrees of variability in colouration and marking, this is a very difficult group of forms. A great number of aberrations have already been named as will be seen from main Volume. A few of these aberrations may prove to be species. *tritici* also seems to form fairly constant variations and local races. The following remarks should be made to the aberrations enumerated in main Volume: — *aquilina* Schiff. is a separate species, also *eruta* Hbn. and *siliginis* Gn.; *detorta* Ev. and *varia* Alph. do not belong to *tritici* but to the Sub-Genus *Mesoeuxoa*; — *distincta* Stgr. is a form of *aquilina*, similarly ab. *obscurior* Stgr. The other denominations of aberrations by Turr and other english authors appear to me absolutely unjustified, as they only refer to quite unimportant colour and marking aberrations and cannot be clearly separated from one another. *subgothica* Hw. (to be changed into *pseudogothica* according to CURTIS) is perhaps a genuine local race in England and possibly also *sagittifera* Steph. (Vol. 3, p. 32). — v. (?) **pseudo-gothica** nom. nov. Curtis (4 e ♀) is smoky grey to grey-brown with pale costal margin with whitish spots on same; — **sagittifera** Steph. (4 e) is similarly pale with black or very dark cell between orbicular and reniform stigmata and with pale costa. — ab. **obelisca** Steph. and other british authors (Vol. 3, p. 32) is not clear to me, it might actually possibly be *obelisca* Schiff. The subdivision of *tritici* forms is so difficult that I will limit myself to the description of a few forms which appear to me to be definitely genuine races. — **insulana** f. nov. (4 e ♂ type) is a very characteristic form of the Isle of Sylt, which at first glance has great similarity with *agathina* Dup. Dark red-brown, paler costa, with white dots, orbicular and reniform stigmata pale, filled with whitish, encircled by black, the space between the stigmata dark. Claviform stigma dark, subterminal line whitish, sagittate marks usually present. Hindwings white, dusky at margin and on veins. Isle of Sylt, July. — **reisseri** f. nov. (4 f ♂ type). Pale grey-brown, costa paler to whitish. Reniform and orbicular stigmata whitish, cell between them dark, claviform stigma large, brown with dark edge, obliquely downwards from same a pale brown stripe, median nervure whitish, marginal area darker, sagittate marks present. Hindwings pale grey-brown with white ground, a dark marginal line, fringes white. Discoidal spot is absent or exceedingly faint. Sierra Nevada, Spain. — ab. **fumosoides** Culot (Oberth. i. l.) is a dark red-brown simple colour aberration from Brittany.

E. crypta Dadd (4 f ♂). Very similar to *tritici* L. but smaller, wings with a red, violet-red or bluish slate tone to ground colour. Thorax generally darker than wings. Markings more or less as in *tritici*. Wing contour shorter and wider. Hindwings darker than in *tritici*. In colouration more like *obelisca* Schiff. than *tritici*. On the wing later than *tritici*, chiefly in 2nd and 3rd week in August. ♂ genitalia do not differ from those of *tritici*. This species requires further investigation. From around Berlin, Pomerania, E. Prussia, August. Early stages unknown.

E. eruta Hbn. (Vol. 3, p. 32, pl. 6 k). Very probably a genuine species and not merely a form of *tritici*. In the Valais it is more frequent than *tritici*; in many districts where *eruta* occurs, *tritici* appears to be absent, for instance in some of the valleys of the Tyrol. On the other hand *eruta* seems to be absent from Spain and Italy. The exact distribution has still to be ascertained. Ova irregular, unicoloured yellowish white, without grooves. According to VORBRODT larvae are larger and darker than those of *tritici*. In certain respects it differs in its biological characteristics from other *Euxoa* (CORTI). Pupa red-brown in a frail cocoon, with 2 cremaster spines.

E. siliginis Guen. (Vol. 3, p. 32) (4 f ♂). Clearly a genuine species. Ground colour mouse-grey, somewhat brownish in patches, colouration and marking uniform, sometimes stigmata stand out whitish. Outer transverse line double, dentate, frequently a marginal line of small black lunules is present. Claviform stigma is absent,

sagittate marks generally also. Hindwings white, sometimes impure white and occasionally with dark margin. A dark marginal line, fringes white. South France, Spain, Caucasus?, Sarepta? Early stages unknown.

rangnowi. **E. rangnowi** *sp. n.* (4 f ♂ type). Larger and of greater expanse than *tritici*. Similar to *vitta* Hbn. Forewings pale red-brown intermixed with white. Costa dusted with white, also orbicular and reniform stigmata, white spots on costa. A black basal streak, the cell below same dark brown, attached to same the very dark, large claviform stigma. Outer transverse line faint, double. Subterminal line whitish, distinct sagittate marks. Hindwings of ♂ almost pure white, abdomen grey-white. No discoidal spots. Underside without bands and markings. South Urals, Guberli, July. Early stages unknown.

diaphora. **E. diaphora** *Brs.* (= *capita* Corti i. l.) (4 g ♂ type). Stouter and more compactly built than *tritici* L. Forewings much wider, dark red-brown, markings distinct, median nervure dusted whitish. Orbicular and reniform stigmata small, filled with pale brownish, inner and outer transverse lines, dark claviform stigma, paler subterminal line. Sagittate marks present. Hindwings pure white with scarcely any black margin, sometimes however margin very dusky. Underside of wings pale, hindwings almost white, both with a marginal line consisting of small lunules. Sarepta, southern Urals, Sebastopol. Early stages unknown.

riphaea. **E. rhiphaea** *Bart.* (4 k ♂). Similar to *tritici*, but still more so to *deserta* Stgr. and *homicida* Stgr. in size, colour and marking. Forewings uniform grey-brown, transverse lines very indistinct, marginal line yellowish. Antennae as in *tritici*. Hindwings almost pure white with very faint dark marginal line. Underside of wings as in *tritici* but paler. *homicida* Stgr. has more heavily pectinated antennae. Urals, August. Early stages unknown.

philippsi. **E. philippsi** *Corti* (5 a ♂ type). Similar to the previous species and to *homicida* Stgr. Antennae like *homicida*. Hindwings pure white as *riphaea* Bart. Underside of forewings with distinct and rather large brown central spot. *homicida* and *riphaea* have hairy scales and scales on thorax, whilst *philippsi* has mainly only scales which widen considerably upwards and have a short protruding spine in the indentation. Sarepta.

cortii. **E. cortii** *Wgnr.* (4 g ♂ cotype). Similar to *homicida* Stgr. Differing from same by the pure white hindwings in both sexes. Antennae much less heavily ciliate and pectinate than in *homicida* and *deserta*. Forewings paler or darker sand (or clay) coloured, sometimes as if powdered over with flour. Extinct transverse lines in basal and marginal areas. Stigmata outlined by fine but distinct dark lines. Reniform stigma always filled with dark scales at its lower extremity. In marginal area a pale subterminal line which is shaded with brownish towards the base. Marginal line yellowish; sharply defined sagittate marks. Undersides of fore and hindwings whitish with silky gloss. Central lunule shadowlike or absent. Early stages unknown. Inner Anatolia. August and September.

fallax. **E. fallax** *Ev.* (Vol. 3, p. 33) (4 h ♂). Palpi white, underside white with inclination to dusky grey, forewings whitish grey.

sulcifera. **E. sulcifera** *Chr.* (Vol. 3, p. 33). According to KOZHANTSCHIKOV, this is no genuine *Euxoa*.

costae-vittata. **E. costaevittata** *Wgnr.* (4 g ♂ cotype). Varies to a considerable degree. Grey to blue-brown. Forewings with wide pale costal streak, distinct blackish spots between orbicular and reniform stigmata. In place of claviform stigma, a small black spot displaced towards the base and a row of distinct blackish sagittate marks in front of margin. Hindwings in both sexes pure white with very fine marginal line which may be absent. Underside white with silky gloss, darker specimens with brown suffusion at apex and at marginal area of forewings, as well as a shadowy arched line there. Central lunule only indicated, generally quite absent. Resembles *vitta* Hbn. Early stages unknown. Inner Anatolia.

claricostata. **E. claricostata** *Corti* (4 g ♂ type). Similar to *tritici* L. Grey to blue brown; paler costa; reniform and orbicular stigmata with whitish circumference and pale centres, claviform stigma large, but generally rather obscure. Median nervure whitish from reniform stigma to base. The oblique pale stripe downwards from claviform stigma, which is generally characteristic of *aquilina* forms, is nearly always distinct. Sagittate marks present, they are situate in a paler patch and are edged by a whitish undulate line outwardly. A fine yellowish marginal line, fringes dark. Hindwings of ♂ almost white, somewhat darker at edge and along veins, in ♀ considerably darker. Underside of forewings dusky, of hindwings whitish with a fine discoidal dot on same. Early stages unknown. Urals, Sarepta, July and August.

The classification here of the following 3 species is perhaps not correct, possibly they should be placed to *islandica* Stgr., but more probably they are related to north american species.

opipara. **E. opipara** *Morr.* (Vol. 3, p. 32, pl. 6 i). This is not synonymous with *norwegica* Stgr. WARREN's description can be supplemented as follows: reminds one of well marked specimens of *vitta*. Basal area often with heavy white patches, inner transverse line undulate, double, edged with whitish inwardly; outer transverse line clearcut, dentate outwardly. The area between the two transverse lines dark, the outer area is then pale like

the basal area. Subterminal line is absent, sagittate marks faintly indicated here and there. Hindwings uniformly mouse-grey, discal spot barely visible, a mere indication of a band. Underside of wings unicoloured grey, sometimes with very pronounced arched stripe. Hindwings with dark central spot. Early stages unknown. Labrador, Greenland, Canada, North America.

E. dissona *Mschlr.* (4 h ♀) according to HAMPSON = *rara* Pack. Forewings pale blue-grey, no dark *dissona*. longitudinal streak from base, basal line short, it does not extend to inner margin. Inner transverse line double, edged with dark outwardly, outer transverse line also double with pale outward edge and finely dentate. Orbicular and reniform stigmata with pale grey centres, the space between the stigmata blue-grey. Claviform stigma grey, scarcely visible, sometimes completely absent. Subterminal line can barely be discerned. Hindwings uniformly grey with distinct central spot. Underside of all wings uniformly grey with faint transverse stripe. Hindwings with a dark central spot. Early stages unknown. Labrador.

E. drewseni *Stgr.* (4 h ♂). A somewhat uncertain species. I am illustrating a ♂, which with the exception *drewseni*. of the size corresponds precisely with the type (type in the Museum at Copenhagen is 29 mm according to HENRIKSEN, my specimen measures 35 mm). Perhaps this is only a local race or aberration of *dissona* *Mschlr.* Forewings impure ash-grey, markings similar to *cursoria* *Hufn.*, otherwise there is scarcely any difference between *dissona* *Mschlr.* and *drewseni* *Stgr.* The two specimens in STAUDINGER's original collection certainly represent *islandica* forms. Greenland.

The species classified as *Euxoa* under Section V, p. 34 etc. of main Volume with the exception of *amoena* *Stgr.* should not have been classified as *Euxoa* and they will be dealt with in later Genera.

Section VII: ♂ antennae faintly serrate, serrations ciliate.

E. karschi *Graes.* (4 h ♀). Classified in main Volume on p. 43 as *Rhyacia*. A somewhat uncertain species. *karschi*. The specimen preserved in the Berlin Museum as GRAESER's type is a ♀ and not a ♂. *karschi* is certainly related to *islandica* f. *rossica* *Stgr.* and with *adumbrata* *Ev.* STAUDINGER has already presumed this to be the case (*islandica* ? ab. *karschi*). Also HAMPSON holds *karschi* and *rossica* *Stgr.* to be synonymous, just as STAUDINGER also with *islandica* ab. *nigra* *Stgr.* According to the description of GRAESER the forewings are elongated, the Berlin specimen and the specimen that I am illustrating, which is practically identical, appear to have rather broader wings. Amur, Uliassutai, Changai etc.

E. oberthüri *Leech* (Vol. 3, p. 33, pl. 7 c). According to FILIPJEV, this is synonymous with *tritici* f. *oberthüri*. *obscurior* *Stgr.*, which is certainly not a fact. *obscurior* is an *aquilina* form, whilst *oberthüri* belongs to the *islandica* group. The antennae vary considerably, the hindwings are never so unicoloured grey-brown in *obscurior* as they are in *oberthüri*. Early stages unknown. Japan, West China.

E. ? norwegica *Stgr.* (5 a ♂ type). A hotly debated species. According to WARREN (Vol. 3, p. 32) it is *norwegica*. synonymous with ? of *opipara* *Morr.*, according to KOZHANTSCHIKOV with *islandica* *Stgr.* But neither is correct, to judge by the type in the Berlin Museum. HAMPSON deems the species to be doubtful. *norwegica* corresponds most to pale specimens of *nigricans* *L.* from England, but the antennae are entirely different, being much less heavily pectinated. The species corresponds to certain forms of *tritici* but here again the antennae are quite different. Forewings grey-black, orbicular and reniform stigmata are ash-grey, inner and outer transverse lines more pronounced than either in *islandica* or *tritici*, the black lunules in front of the fringes are heavier. Upperside of hindwings impure white at base gradually changing to grey-black at outer margin. Underside of forewings with dark disc, hindwings with fairly large black dot at end of central cell. A distinct dark transverse line is present. The species described as *Agrotis nov. spec.* (without name) by WOCKE E. Z. Stettin 1864 p. 181 refers to a different species; HAMPSON thinks this is perhaps *opipara* *Morr.* ? Described by STAUDINGER from a single ♂ from Fogstuen, Norway, captured in August.

E. derasa *sp. n.* (4 h ♂ type). A smaller species with similar narrow forewings and clearly related to the *derasa*. genuine *islandica* *Stgr.* from Iceland. Forewings of ♂ are coppery red-brown, almost unicoloured with a dark basal streak, also a pointed claviform stigma circumscribed by black. Inner transverse line indistinct, double, undulate outwardly. Outer transverse line indicated. A pale subterminal line before margin, anal area somewhat darker, sagittate marks absent. A pale, yellowish marginal line, fringes dark brown peppered with pale patches. Orbicular and reniform stigmata small with pale brownish centres and dark circumscriptions. Hindwings impure pale brown, fringes white. A distinct discoidal streak is present. Thorax of same colour as forewings. Abdomen pale brownish as the underside of wings. Underside of hindwings much paler, darker at costal margin with an arched stripe indicated. The ♀♀ are often much darker, stigmata more prominent. Early stages unknown. Uliassutai, Thibet, Transbaikal.

E. islandica *Stgr.* (Vol. 3, p. 31, pl. 7 b, *islandica* and *rossica*). A very complicated group of forms, which *islandica*. varies exceedingly. Most of the later authors hold *rossica* to be synonymous with v. *rossica* *Stgr.*, *nigra* *Stgr.* and also with *karschi* *Graes.* (HAMPSON). STAUDINGER's original specimens came from Iceland and represent

- relatively small, partly distinctly marked specimens. The illustration in the main Volume is quite good of one form, I am illustrating here (4 i) a further, different specimen of the ♀. With such a degree of variation it is difficult to give a proper description, I am therefore quoting STAUDINGER's diagnosis, which taken together with the illustrations, should suffice, more especially as there is no other species from Iceland, for which same could be mistaken: „m. grisea, alarum anticarum margine antico, maculis duabus fasciaque exteriore albicantibus; antennis maris subpectinatis. Magn. 30—40 mm. ♂♀. Var. a. alis anticis concoloribus, fusciscentibus. ♂♀.“ — Larva lives subterraneously, head with yellow ground colour, body dull grey, a fine pale dorsal line, situate in a central stripe of the ground colour, laterally a wide yellow obscure longitudinal band. Hair warts strikingly dark. Scutellum glossy brown. Pupation at the end of June in an earthy cocoon. Pupa brown with one or two cremaster spines. July—August. Iceland. *islandica* is said, according to various authors, to occur elsewhere, for instance ALPHÉRAKY maintains it occurs in Turkestan, Corea and Kamschatka, AURIVILLIUS says it occurs in Greenland, Labrador, Livonia and Siberia. It is true that one finds specimens in those countries which cannot be differentiated from *islandica*. Nevertheless I consider the subdivision of — **rossica** Stgr. to be justified. I am illustrating (4 i ♂) a specimen of *rossica* that has been compared with STAUDINGER's original. This form is generally much larger than *islandica*, up to 43 mm, forewings and chiefly hindwings are wider and more rounded, the illustration in the main Volume (7 b) is not good. Saisan, Margelan and apparently the whole of Asia to Vladivostock. STAUDINGER has separated the form of *islandica* from Labrador as — **labradoriensis**. I am illustrating a specimen from Labrador (4 i ♀) as I consider it highly probable that a genuine subspecies occurs there. Ground colour pale ashy grey without a trace of brown. Outer transverse line prominent, forewings with distinct limbal streaks, hindwings with distinct central lunule on underside. As already remarked *islandica* varies quite considerably and there may be genuine races among the immense material placed at my disposal. In fact there may be distinct species, but I content myself with mentioning the very striking form (species?) from Uliassutai, Aksu, Sidemi, Irkutsk, Yarkend, which I introduce as — **yarkenda** (A. Bang-Haas i, l.) (4 i ♂ type). It differs by the very distinct inner and outer transverse lines, as well as by the distinct pale subterminal line and the striking orbicular and reniform stigmata with their whitish centres. Sagittate marks distinct. The *islandica* f. *nigra* Stgr. most probably belongs to *karschi* Graeser.
- tristis.** *E. tristis* Stgr. (Vol. 3, p. 33) (4 i ♂). Sec. Stgr.: „an *tritici* forma Darw.?“ It is characteristic in typical specimens that besides the entirely differently shaped antennae to *tritici*, there is a segment-like long dark- (luna) transverse streak on underside of hindwings. KOZHANTSCHIKOV deems *tristis* to be a subspecies of *varia* Alph. which I do not consider correct after an examination of the ♂ genitalia. *tristis* is a genuine *Euxoa*, whilst *varia* is a typical *Mesoeuxoa*. Dauria, Mongolia, Siberia (Minussinsk).
- subconspicua.** *E. subconspicua* Stgr. (4 k ♂). In Vol. 3, p. 29 WARREN places *E. confusa* Alph. as synonymous with *subconspicua* Stgr. This is erroneous. *confusa* Alph. is synonymous with *squalida* Gn. and should be placed in an entirely different Genus. It resembles a small *conspicua*, ground colour grey-brown, varies however considerably, quite dark specimens occur. Transverse lines as in *conspicua*, the black sagittate marks as a rule more numerous and more sharply marked than in that species. Hindwings dark grey-black with almost white fringes. Antennae less heavily pectinated than in *conspicua*. Palpi, legs and abdomen as in that species. In the ♀♀ markings are usually more clearly marked, all transverse lines darker and more prominent. Ferghana, Ulias, Korla, Ili territory, Issyk-kul, Turkestan. July. Early stages unknown.
- püngeleri.** *E. püngeleri* Wgnr. (5 a ♀ type) (coll. PHILIPPS, Cologne). Similar to *subconspicua* Stgr. and *mustelina* Chr. Differs from both chiefly through the darker hindwings. A black or dark streak between the reniform stigma and the outer transverse line seems to me to be characteristic in the ♀ type. Further there are 2 distinct black sagittate marks, which however are not very distinct in the ♀ type. Underside fairly uniformly yellow-grey with distinct discoidal lunules on both wings and a dark arched line. As on upperside a row of clearly defined black limbal dots before margin. Forewings yellow-brown, darker in the ♀, the transverse lines clear and blackish; a faint subterminal line is present; stigmata rather indistinct. Ili territory, surroundings of Djarkent.
- rebeli.** *E. (?) rebeli* Wgnr. (5 a ♂ type) (coll. PHILIPPS, Cologne). Related to *mustelina* Chr. Forewings clay coloured, yellow brown, two dark transverse lines, a pale subterminal line with dark shaded outline on both sides; stigmata dark grey-brown (lead-grey), orbicular and reniform stigmata with light outline, claviform stigma indicated. Hindwings impure yellowish white, darker in basal area. Underside of same colour as hindwings, these have a distinct central lunule and a diffuse shadowy band before margin. Ili territory, surroundings of Djarkent.
- mustelina.** *E. mustelina* Chr. (Vol. 3, p. 31, pl. 7 a). The illustration was not good, I am therefore giving same afresh (4 k ♂). Head, thorax and forewings pale grey-brown. The inner transverse line consists chiefly of minute blackish striations and dots, the outer one generally indistinct, often almost absent; orbicular stigma paler than forewing. Reniform stigma usually indistinct, the space between the two often blackish. Subterminal line distinct, dentate, yellowish brown. Black dots before the margin; sagittate marks often more or less present. Marginal line pale, yellow-grey. Hindwings of ♂ pale, whitish, somewhat dusky at margin, rather more yellow-grey in ♀. Underside similar to *cursoria*. The original specimens originate from Shakuh, Persia, quite similar

specimens occur however also in Altai, Pontus, Ili territory, Aksu, Issyk-kul, Turkestan. The species seems to vary considerably in marking, it is quite possible that there are several new species or at all events subspecies hidden here. For instance a pale form — *mustaga* O. B.-H. i. l. from Yarkend is perhaps a genuine race. It *mustaga* occurs in July. Early stages unknown.

E. centralis Stgr. (Vol. 3, p. 31, pl. 7 a) (= *mustelina* v. *centralis* Stgr. [obscurior, distinctius signata] = *centralis. mustela* Stgr.). According to KOZHANTSCHIKOV this is a distinct genuine species. The illustration in main Volume is not good, I am giving a fresh illustration (4 l ♂). *centralis* is much more darkly and distinctly marked than *mustelina*, the reniform stigma is generally more clearly marked, the space between orbicular and reniform stigmata is darker, the transverse lines distinct, double. The central shade is occasionally very pronounced and stands out darkly. Underside of hindwings often has a very distinct lunule. According to KOZHANTSCHIKOV *mustelina* is a west central asiatic species, whilst *centralis* is an east central asiatic kind. But many transitions to *mustelina* are known. Issyk-kul, Ili territory, Saisan, Turkestan, according to KOZHANTSCHIKOV also Asia Minor and Siberia.

E. assymetrica Kozh. This is unknown to me. According to the author it must be classified after *assymetrica. centralis*. It is a small species, ground colour pure grey with darker grey markings. The position of the 2nd and 3rd transverse lines is typical for this species; the 2nd goes straight to the dorsum, the 3rd only bends outwards at costa, otherwise it proceeds obliquely downwards; neither of the lines is undulate, central shade quite pronounced, dark and almost straight. Subterminal line faintly undulate. Fringes pale grey, white on dark hindwings. Underside pale grey with scattered darker scales. Lunule spot quite absent on upperside, scarcely perceptible on underside (extract from the original description). Georgia, Kodshori, captured 23rd August 1908.

E. flavogrisea sp. n. (= *flava* Corti i. l. 4 k). The name *flava* was not a happy choice, as the ground *flavogrisea* colour of forewings is a dull ashy pale colour and I am therefore revising the name. Orbicular and reniform stigmata are very distinct, the former sometimes very small, like a light dot. Both stigmata with dark circumscriptions. The cell before the orbicular stigma and the space between same and the reniform stigma are more or less filled with brown. Costa of forewings somewhat paler. Basal line scarcely perceptible, on the other hand a brownish basal streak, usually there is no inner transverse line and when it is present, same is quite indistinct. Claviform stigma brownish. Usually the outer transverse line is also absent. There is a row of distinct sagittate marks. Fringes of same colour as forewings; hindwings uniformly grey-brown, somewhat paler in centre. Fringes white. Underside almost uniformly grey-white. Hindwings somewhat paler, usually with dark discoidal spot. Central Asia, Kara-Murun, Chotan, Aksu.

E. basigramma Stgr. (Vol. 3, p. 33, pl. 7 b). Varies considerably in colour; besides the reddish grey *basigramma* form from Sarepta, from where the original specimens emanate, there are very dark to almost black forms and very pale, grey and blue-grey (not reddish) forms. Hindwings are sometimes impure white, sometimes pure white. The orbicular stigma that is always open towards the costa, is characteristic and the black basal streak is always more or less distinct. WAGNER has separated the blue-grey (not reddish) form with almost pure white hindwings as — v. *pallidior*. This form appears to be the predominant type in central Asia. However such *pallidior* specimens also occur in Sarepta. — *hyrcana* O. B.-H. i. l. *subsp. n.* (5 a ♂ type) is a very nice race from North *hyrcana* Persia, which strikes one immediately by its sandy to reddish yellow coloured forewings. Hindwings pure white. The distribution of *basigramma* lies between S. E. — USSR., Urals, Sarepta, Thien-Shan, Issyk-kul, Ferghana, Tarbagatai and according to KOZHANTSCHIKOV also Bokhara, S. Siberia and W. Mongolia. A specimen before me from the Bukowina requires confirmation as to its occurrence there. Early stages unknown.

E. (?) privigna Pglr. (5 b ♀ type). Forewings light grey without gloss, in colour somewhat like *tamerlana privigna*. *Hmps.* Basal streak much less distinct than in *basigramma* and not extending beyond the inner transverse line. Middle cell filled with black, stigmata pale grey, orbicular stigma elliptical, claviform stigma not visible except for a distinct black hook below the orbicular stigma, fringes whitish grey. Hindwings white. Underside whitish, forewings with small central spot and pale centre. Hindwings with quite faint central lunule. Atshan, E. Turkestan.

E. apocrypha sp. n. (4 l ♂ type). Similar in markings to *basigramma*, orbicular stigma also open towards *apocrypha* costa, which is scarcely paler. Forewings almost uniformly brownish grey, stigmata more or less prominent. The black basal streak which is characteristic of *basigramma* and related forms, is quite absent. Hindwings impure white. I have a large number of these in my collection from Naryn and a few from the Urals. ALPHÉRAKY and STAUDINGER consider these specimens doubtful and suppose they are variations or aberrations of *basigramma*, from the Thien-Shan territory and from Kuldja, but without giving any reasons.

E. impexa Pglr. (Vol. 3, p. 29) (4 l ♂). Resembles *griseescens* f. *hyrcana* Stgr., but has nothing whatever *impexa* to do with same. Forewings a monotonous earthy grey, transverse lines clear, blackish, the inner one slightly arched, the outer one proceeding around the reniform stigma and touching the lower end of same, then somewhat obliquely to inner margin. Stigmata indistinct, fringes grey with paler basal line. Hindwings dull grey, somewhat darker at margin. Discoidal spot faint, elongated. Underside grey-blue with very indistinct central spots and diffuse dark arched line. Aksu.

E. (?) praesaga sp. n. (4 l ♂ type). Similar to a small *cos* Hbn., about the size of *cos* f. *cycladum* Stgr. *praesaga*. Forewings a monotonous sandy grey with yellowish tinge. Thorax similarly. Markings faint but distinct;

basal line absent or only indicated by spots; inner transverse line somewhat oblique towards margin, indicated by dark arched line, outer transverse line usually dentate outwardly; orbicular and reniform stigmata faintly prominent, with blackish edges to the right and left. Claviform stigma is absent or only faintly indicated. Subterminal line faintly indicated by a shade with a pale edge outwardly. Sagittate marks are absent. Dark erecents before margin, fringes of the same colour as forewings. Hindwings grey-white to grey-brown. No discoidal spot. Underside almost unicoloured impure white, forewings slightly dusky brownish especially in centre. Crimea, Sarepta, Askhabad.

bogdanovi. **E. bogdanovi** Ersch. (Vol. 3, p. 28, pl. 6 a) (= *Leueania bogdanovi* Ersch. = *Hiptelia grumi* Alph.) (4 l). Forewings delicate yellowish, somewhat like *L. vitellina* Hbn., but still paler. It differs from same by the narrower and differently marked forewings. These have 2 narrow, indistinct stripes of rusty red colour, orbicular and reniform stigmata of the same colour, a rusty red central shade is present, hindwings yellowish white. W. Turkestan, Ferghana, Issyk-kul. August. Early stages unknown.

leaena. **E. leaena** Pglr. (5 b). Sandy yellow inclined to reddish, transverse lines single, delicately marked and faintly dentate. The inner one somewhat oblique, the outer one incurved under the slightly more darkly discernible reniform stigma. It proceeds almost at a rightangle in an interrupted but straight line to inner margin. Hindwings dusted with grey, basal area, fringes and a very narrow stripe before margin being yellow. Underside monotonous yellow with fine arched line. Reminds one of *similis* Stgr. and *heringi* Chr. Ferghana.

Section VIII: Antennae of ♂ only ciliate.

amoena. **E. amoena** Stgr. (Vol. 3, p. 34, pl. 7 e). The illustration in Vol. 3 is quite good, only in most specimens the inner transverse line is less distinct and the dark spot in the reniform stigma paler. This is also the case in the type. Hindwings impure whitish yellow, abdomen yellow to yellow-grey. Resembles *constanti* Mill., however in some specimens it is almost exactly like *bogdanovi* Ersch. It can however easily be differentiated by the entirely differently formed antennae. Armenia, Asia Minor, Turkestan. In autumn. Early stages unknown.

lapidosa. **E. lapidosa** Graes. (Vol. 3, p. 52) (5 b ♀). A larger species, reminding one of *conspicua* Hbn. and *simulans* Hufn. Much darker than the latter, forewings very elongate. Ground colour dark grey-brown with 2 double transverse stripes. These are paler in centre and edged with blackish outwardly. Basal line present, but often scarcely discernible. Orbicular and reniform stigmata large, paler than ground colour, reniform stigma often with yellowish white centre in the edge towards the outer margin. Claviform stigma not always distinct, pale with blackish circumscription. Subterminal line is absent, there is often an undulate line before margin consisting of yellowish white spots. Hindwings and fringes of all wings dark smoky grey, the latter with very indistinct dark dividing line on forewings, on hindwings with whitish tips. Underside paler grey, arched line usually absent, sometimes however very distinct, both wings with blackish discoidal lunule. Head, thorax and upperside of abdomen dark brown-grey. Siberia, Pokrofska, Irkutsk, Vladivostok, Transbaikalia. July. Early stages unknown.

sibirica. **E. (?) sibirica** B. (Vol. 3, p. 49, pl. 12 h). The illustration there is unsatisfactory, I am therefore illustrating (5 b) BOISDUVAL's ♀ type. *sibirica* can scarcely be differentiated from certain forms of *lapidosa* Graes. and FILIPJEV considers them both synonymous. GRAESER's type of *lapidosa* is a small ♂, by which according to FILIPJEV, GRAESER was misled into establishing his *lapidosa*. In my opinion it is quite possible they are the same, but as BOISDUVAL's type shows a completely smooth frons (which however can of course happen in one and the same species of *Euxoa*), *sibirica* should be retained as a doubtful species. Siberia, Ussuri, Corea (according to STAUDINGER).

intracta. **E. intracta** Wkr. (Vol. 3, p. 33, pl. 7 e). Similarly a large species, very like the previous one but much more red-brown. Compare the description in the main Volume. Described from North India, but occurring also in Tibet, China and Japan. Early stages unknown. STRAND has described the following 2 aberrations: —

uniformis. ab. **uniformis**: forewings uniformly dark or reddish brown without darker sprinklings and ab. **japonica**: head, thorax and body uniformly black-brown not peppered with darker scales, the grey rings outlining the characteristic stigmata being sharply pronounced; hindwings whitish with brown veins and marginal area. In my opinion these are simple colour variations.

The following species classified as *Euxoa* under Section V in the main Volume are no *Euxoa* at all and will be dealt with later: *decussa* Stgr., *difficilis* Ersch., *marcida* Chr., *eremicola* Stlfs., *clara* Stgr., *ignara* Stgr., *singularis* Stgr. (the 4 last named belong in the Genus *Dichagyris*), *peperida* Hmps., *opisoleuca* Sigr., *forcipula* Ev., *forcipula* Schiff., *exacta* Stgr., *glauescens* Chr., *turbans* Stgr., *signifera* F., *celsicola* Bell., *improba* Stgr. (the 7 last named species should be in a Genus by themselves), *haifae* Stgr., *spissilinea* Stgr., *multispinis* Stgr., *aeglicuspis* Stgr. and *pygmaea* Hmps.

Subgenus Mesoeuxoa subgen. nov.

Already in 1925 at a meeting of the Swiss Natural History Society I reported that there were a number of so-called *Euxoa* having one prong of the ♂ elasper sometimes half the length and even shorter than the other.

FILIPJEV drew attention to this fact again in 1927. I believe that this very constant occurrence in the species in question justifies establishing a new subgenus, for which the formation of the claspers, as mentioned above, is characteristic. In other respects the species of the subgenus do not differ morphologically from *Euxoa*. They have a more or less pronounced protuberance or crater on the frons (more frequently than is the case in *Euxoa*, a completely smooth frons is found in specimens of the same species). The antennae in most of the species so far discovered are pectinate or ciliate. Biological data are so far only known of *M. lidia* Cr. In this regard it is remarkable that the ova of *lidia* are grooved, whilst this is not the case in the ova of species of the Genus *Euxoa* that are so far known.

M. variegata Wgnr. (5 a). Very similar to *islandica* f. *rossica* Stgr. and also *arenacea* Kozh. Rather *variegata*, smaller than *islandica*, nicely marked, reddish blue-brown, with wide yellow-white costal streak extending to the reniform stigma. A dark basal streak, dentate double inner transverse line, brown-black claviform stigma and from same a yellow-white streak obliquely downwards almost to inner angle. Median nervure pale, standing out prominently. Orbicular and reniform stigmata large with yellowish centres, the cell between them dark brown, marginal area and inner margin of forewings paler than the ground colour. Subterminal line pale, usually with heavy dark sagittate marks. Fringes yellow-brown. Hindwings brownish, paler in centre with distinct discoidal lunule. Outer edge of fringes almost white. Underside pale brownish admixed with white, a bold discoidal lunule on all wings. Faint indications of an arched line here and there. Central Asia, Samarkand, Issyk-kul, Djarkent, Ussuri. Early stages unknown.

M. lidia Cr. (Vol. 3, p. 33, pl. 7 c). Very closely related to the following *inexpectata* Alph. and perhaps *lidia*, only the west european form of same. *lidia* has no relationship with *adumbrata* Ev. (KOZHANTSCHIKOV assumes that *adumbrata* is a subspecies of *lidia*). *lidia* appears to vary little in markings and colouration, now and then one finds paler, almost buff specimens, sometimes the white costal streak extends beyond the reniform stigma. Also the outer area can be paler and the central area very dark. *lidia* occurs in June-July, but has also been taken in October (2nd generation?). Ova straw coloured, grooved. Larvae are subterraneous, grey-black in colour with a greasy gloss. Scutellum grey-black, divided in middle by yellow-white. Feeds on dandelion, grass and other low growing plants. Pupa in a frail earthen cocoon, cremaster with 2 spines. The moth is attracted to light and sugar. Hitherto only found in north Germany and Holland (Hamburg, Jutland, Luneburg Heath, Westphalia, Bremen and Brunswick). CRAMER's note that his specimen originated from Surinam must be due to an error.

M. inexpectata Alph. (Vol. 3, p. 33). ALPHÉRAKY describes this species as a variety of *lidia* Cr. It is *inexpectata*, not as dark as *lidia*, the white patches of *lidia* are replaced in *inexpectata* by a pale ashy grey. The thorax is more grey than in *lidia*, basal area is also ashy grey and not black, similarly the costa, and stigmata. Reniform stigma even has a brown centre. Besides this ALPHÉRAKY mentions a characteristic that is absent in *lidia*, there is a pale stripe from the claviform stigma to the inner angle (such as in *variegata* Wgnr.). KOZHANTSCHIKOV has described a species — **arenacea**, which he first mentioned as *Euxoa inexpectata* f. *arenacea*, then he and FILIPJEV considered this *arenacea* synonymous with *inexpectata*, which is probably right. *arenacea* varies considerably, I am illustrating a cotype (5 b ♂). *arenacea* is much more red-brown, therefore *inexpectata* would more likely be an aberration. The only ♀ type of ALPHÉRAKY originates from Sidemi, Siberia. *arenacea* is known from many localities, Urga, Minussinsk, Irkutsk (KOZHANTSCHIKOV), also Kamschatka (CORTI). Early stages unknown.

M. distracta sp. n. (5 c). ♂ antennae pectinate and ciliate. Has the appearance of a small *inexpectata* *distracta*, being abt. 31 mm, as against 36 mm. Colour and marking as in *inexpectata*, in many specimens somewhat more grey, in others darker, markings more distinct, especially on hindwings. The inner transverse line is straight, not dentate as in *inexpectata*, on the inner margin of forewing it extends sharply outwards, forming a sort of a second lower claviform stigma, the outer transverse line scarcely dentate at all outwardly. Underside like the species named, but the lunule on hindwings forms an acute angle. Kyssyl-Yart, Seening, Thibet.

M. deficiens Wgnr. (5 c ♂). ♂ antennae serrate and ciliate. A somewhat larger species than the former *deficiens*, and very similar to same, grey-brown, more sharply marked than *distracta*. Inner transverse line double, interrupted, inner edge pale, outer dark. Outer transverse line similarly double, inner edge dark, outer light. A pale undulate subterminal line, which is absent in *distracta*. Hindwings paler brownish, underside almost monotonous grey-brown with distinct arched stripe on both wings. Discoidal spot on underside of forewings like a streak, on hindwings arched. Central Asia, Turkestan. Early stages unknown.

M. (?) detorta Ev. (Vol. 3, p. 32). This seems to me to be an uncertain species. STAUDINGER classifies *detorta*, *detorta* as ? v. to *tritici*. HAMPSON and WARREN place it as an aberration of *tritici* with reddish ochreous colour, pale brown costa, distinct lines and prominent stigmata. According to FILIPJEV *detorta*, of which the only known ♀ type is in the Museum at Leningrad, is synonymous with *currens* of *cursoria* Stgr. ERSCHOFF deems *detorta* to probably be a variety or local form of *tritici* L. The type comes from Kiachta, eastern Siberia,

other specimens (?) are reported from Mongolia. I do not agree that there is any proof that it is identical with *currens*.

- varia*. **M. varia** *Alph.* (Vol. 3, p. 32) (5 c ♂). According to STAUDINGER v. (et ab.) of *tritici* *L.* (al. ant. vitta costali, venis, maculisque distinctius albidis, an. v. praece. [ab. *subgothica* *Hw.*] satis distincta?). ALPHÉRAKY describes *varia* as a variety of *tritici*. Ground colour very dark, sometimes almost black. Costa, median nervure and stigmata more or less white. Sagittate marks present. Hindwings grey-brown with distinct discoidal lunule. ♂ antennae scarcely pectinate only ciliate. Fringes of hindwings impure white. Central Asia, Altai, Siberia. Early stages unknown.
- minima*. **M. (?) minima** *Kozh.* Described by KOZHANTSCHIKOV as *Euxoa* from a single ♀ with unknown collector and date. It is said to be closest to *subconspicua* *Stgr.* and *varia* *Alph.* Ground colour of upperside grey-brown, underside pale grey. Markings clear. The 1st two transverse lines not typical, white and black, the 3rd curved inwards and heavily dentate. Orbicular and reniform stigmata whitish grey, claviform stigma distinct. Subterminal line white with black cuneiform stripes. Hindwings dusky grey. Discoidal spot absent. Underside devoid of markings. Expanse: 29 mm. Turkestan. (According to KOZHANTSCHIKOV.)
- filipjevi*. **M. (?) filipjevi** *Kozh.* Described by KOZHANTSCHIKOV from a single ♀ which is in bad condition (!). It is also said to be very close to *varia* *Alph.*, being somewhat larger. Ground colour of forewings dusky grey, basal line faint, double, dark, between the Vena basalis and dorsum of the wings a loop mark is formed towards the termen. Costal margin very light. Orbicular stigma impure white, open towards costal margin. Reniform stigma darker. A black patch between the stigmata. Postmedian line double. Cuneiform marks fainter than in *varia*. Hindwings dusky grey. Underside greyish, discoidal spot faintly indicated. Related to *subconspicua*. (According to KOZHANTSCHIKOV.) Altai. August. Probably a ♀ of *varia* *Alph.*
- sparsa*. **M. sparsa** *sp. n.* (5 c). ♂ antennae shortly pectinate and ciliate. A pretty little species. Ground colour of forewings grey-brown, costa, median nervure, orbicular and reniform stigmata whitish, stigmata with brownish centres. Central area of wings paler. Basal area dark in middle, almost black, inner transverse line whitish, claviform stigma short, compact and dark, outer transverse line pale. Distinct sagittate marks in very dark marginal area. Fringes pale, brownish. Hindwings impure white, no discoidal lunule, margin somewhat darkened, fringes as wings. Underside of forewings pale grey-brown with faint discoidal spot, hindwings impure white with faint central spot. Sarepta. Early stages unknown.
- subvaria*. **M. subvaria** *sp. n.* (5 c). Very similar to a small *subconspicua*. ♂ antennae shortly pectinate and ciliate. Ground colour ochreous brown, similarly orbicular and reniform stigmata which have brownish centres and black circumscriptions. The space between is scarcely darker, but there is a dark central shade. Inner and outer transverse lines are double, the latter dentate outwardly. Sagittate marks distinct. Marginal line dark, fringes sprinkled with grey-brown, separated from margin by a yellowish line. Hindwings grey-brown, paler towards the centre, fringes almost white, no discoidal spot. Underside monotonous brownish white with distinct arched stripe on all wings, hindwings dusky at margin, discoidal spot and lunule scarcely visible. Aksu, Ulias. Early stages unknown.
- opportuna*. **M. opportuna** *sp. n.* (5 d). ♂ antennae pectinate and ciliate. This nice little species reminds one somewhat of *acuminifera* *Ev.*, but also of *varia* *Alph.*, only the ground colour is a brownish buff. Some specimens are yellow-brown to almost red-brown. In some specimens the moth looks as if it were white, marbled with brown. Costa brightly pale as far as orbicular stigma, inner transverse line wide, yellowish white. Orbicular and reniform stigmata whitish with brownish centres and dark circumscriptions. Outer transverse line double, inner one blackish, dentate with white outward edge. There is then a pale area in which there are numerous sagittate marks. Marginal area darker, margin of small black lunae, fringes sprinkled with grey-brown. Claviform stigma indistinct, as if cut off towards base. A pale oblique stripe from same towards the inner angle. Hindwings grey-brown, paler in centre, lunule reflects through. Underside impure grey-white. Forewings and hindwings with arched stripe, on the latter it is formed of spots. Margin of forewings consists of small lunae, discoidal spot and lunule distinctly present. Kuruk, Chotan, Central Asia. June. Early stages unknown.
- divulsa*. **M. divulsa** *sp. n.* (4 k). ♂ antennae pectinated and ciliate. Somewhat larger than the previous species, somewhat like *subconspicua* but much paler and more buff. Transverse lines as a rule distinct, double. The inner one with dark edge outwardly, the outer one with dark edge inwardly and heavily dentate outwardly. Orbicular and reniform stigmata always more or less filled with whitish. Fairly distinct sagittate marks at outer margin. Hindwings uniformly grey-brown, marginal line yellowish, fringes white, a distinct, angular discoidal spot present. Underside glossy, grey-white, hindwings paler, dusky at margin. Distinct discoidal spots on all wings. Issyk-kul, Aksu, Altyn-tag.
- nomas*. **M. (?) nomas** *Ersch.* (5 d ♂). There are only 2 ♂♂ specimens before me, the one from the PÜNGELER collection in Berlin, the other ex my own collection. This is denominated *oschi* *Stgr.* and STAUDINGER is said to have disposed of several specimens under this i. l. denomination. I am not at all certain as to the synonym,

nor as to whether the systematic position here is correct. HAMPSON places *nomas* among the species not dealt with by him, as a doubtful *Orosagrotis* (protuberant frons, all tibiae with spurs, head and thorax covered with hairs). These characteristics are certainly present and *nomas* also resembles *quieta* Hbn., but still more *Agrotiphila staudingeri* Mschlr., with which perhaps it is related. KOZHANTSCHIKOV has examined the ♂ genitalia and places *nomas* in the Genus *Euxoa*, but according to the illustration *nomas* appears to be a genuine *Meseuxoa*. — The species is a small one of abt. 22—23 mm expanse, 26—27 mm according to ERSCHOFF. Forewings and fringes dark ashy grey, basal line indicated by dark spots, the inner and outer transverse lines darker and more distinct with light edges, orbicular and reniform stigmata whitish with brownish centres, marginal area between the outer transverse line and the distinct sagittate marks much paler. Hindwings ashy grey, somewhat darker towards margin, fringes white. Underside pale ashy grey, a distinct band over both wings, more pronounced on forewings. Antennae of ♂ shortly clavate instead of serrate and with long, dense pencillo-fibriatae. Ferghana, Turkestan in July.

M. complicata sp. n. (5 d ♂ type). A larger species, abt. 42 mm. Antennae of ♂ very heavily serrate and ciliated. Forewings almost uniform grey-brown, thorax similarly. No collar. Claviform stigma obsolescent also the basal transverse line, inner line distinctly double and pronouncedly concave, orbicular and reniform stigmata are scarcely visible being of the same colour as the wings with faint dark circumscriptions. A very pale faint subterminal line is present, marginal area being slightly darker. A clear yellow marginal line in front of which are small black lunules. Fringes somewhat paler than the wings. No sagittate marks. Hindwings monotonous brownish white, somewhat darker towards the margin; a yellow marginal line, fringes impure whitish. Underside of forewings glossy grey-brown, hindwings impure whitish, a band is indicated on same by dark streaks along the veins. Naryn, Turkestan. *complicata*.

M. determinata sp. n. (5 d ♂ type). Slightly smaller than the previous species. Antennae of ♂ serrate and ciliated. Thorax and forewings pale grey-brown, basal area and costa grey. Basal line indicated by a few distributed spots, inner and outer transverse lines distinctly visible, double, the outer one curving sharply inwards at inner margin. Claviform stigma scarcely visible, orbicular and reniform stigmata pale with blackish surrounds, the former round, the latter with black inner edge, almost open outwardly. Long and distinct sagittate marks. A blackish marginal line. Hindwings uniformly dull brownish grey with distinct angulated discoidal spot. Fringes impure white. Underside pale, dusky grey-brown with heavy discoidal arc on forewings. Tien-shan. *determinata*.

M. fissa Stgr. (Vol. 3, p. 28, pl. 6 b). The illustration was poor, it is being repeated on pl. 5 e. A medium sized species, antennae of ♂ bipectinated, somewhat like in *distinguenda* Led. In colouration *fissa* seems to vary considerably. STAUDINGER speaks of a dusky dark grey colour of forewings, specimens from the Province Irkutsk, of which one is being illustrated, are brown to red-brown. The inner transverse line is double, very distinctly marked, sagittate marks are absent, median nervure pale. For other remarks compare Vol. 3. Apart from the antennae it might easily be mistaken for a small *recussa* Hbn., which possibly has induced the synonymising of *decussa* Stgr. with *recussa* Hbn. by HAMPSON. However *decussa* is neither an *Euxoa* nor a *Meseuxoa*. Wing expanse 31—35 mm. Uliassutai, Siberia, Turkestan. *fissa*.

M. foeda Led. This species which I erroneously classified under *Euxoa* (Suppl. Vol. 3, p. 30) should be placed with the subgenus *Meseuxoa* according to the structure of the ♂ copulation organs. *foeda*.

M. hilaris Frr. (= *conifera* Chr.) (Vol. 3, p. 31, pl. 6 i). Although this species varies considerably, the illustration in the main Volume is not satisfactory and it is being repeated here (5 e). To be added to WARREN's description in the main Volume is that the transverse lines are usually very distinct. Forewings are inclined to reddish-brown rather than grey, claviform stigma generally distinct, hindwings pale grey-brown. Underside with distinct lunules and more or less pronounced bands on both wings. FREYER's type originated from Constantinople. Specimens from Persia, which are somewhat darker are denominated by STRAND as ab. *persiae*. Their claviform stigma is extinct, but this also occurs in *hilaris* and this designates HAMPSON's ab. 2. The forms denominated by WARREN from the Urals and having white hindwings must refer to some other species. In regard to the — ab. *incognita* Stgr. mentioned in the main Volume, both HAMPSON & WARREN have erroneously classified same with *hilaris*; *incognita* is a genuine species and synonymous with *seditiosa* Pglr. and *elaborata* Corti i. l. This is a genuine *Agrotis* (*Feltia*) and is dealt with in that Genus. Asia Minor, Armenia, Persia, Turkestan, Altai, Siberia, Amur. It flies by day in June-August. Early stages unknown. *persiae*.

M. biscajana sp. n. (5 d, ♂ cotype). Antennae of ♂ finely pectinated and ciliated. Similar to a *tritici* L., differing from same however by the entirely differently formed antennae. Forewings pale reddish brown (it may be presumed that darker specimens also occur) intermixed with brown, basal line not visible, a dark basal streak is present, inner transverse line faint, claviform stigma distinct and from same to anal angle there is a wide pale streak. Orbicular stigma smaller than the reniform stigma, both with pale centres and somewhat dark circumscriptions. Outer transverse line faint, darkly indicated on veins. A marginal line formed of dark lunules. Hindwings impure white with dusky dustings on veins and at margin. A darker brown marginal line. *biscajana*.

Underside glossy, impure white peppered with brownish. Discoidal spot indicated on both wings, both wings have a marginal line of small dark lunules. Spain, Santander.

rjabowi. **M. rjabowi** Kozh. (5 e ♂). According to KOZHANTSCHIKOV closest to *hilaris* Frr. and belongs to *Meseuxoa* according to an illustration of the ♂ genitalia. Antennae of ♂ ciliated and faintly serrate. Entire ground colouration is grey, markings on wings very distinct, all lines outlined by whitish. Transverse lines I and II are undulate, the latter very pronounced with a concave arc at its lower extremity. Orbicular and reniform stigmata whitish grey, claviform stigma darker, all with black surrounds and the former conjoined by a white streak. The third transverse line as usual, faintly dentate. Subterminal line white with black cuneiform streaks. Terminal line black, fringes pale grey intersected by black. Hindwings paler at base, lunar mark prominent, fringes white. Underside grey, lunar spot crescent shaped. Expanse 33—35 mm (according to KOZHANTSCHIKOV). Occurs at end of August at Daghestan, Kurush Mountains.

rasilis. **M. rasilis** sp. n. (5 e ♂ Type). Antennae of ♂ finely serrate and ciliated. A small and insignificant species. Forewings almost monotonous pale reddish grey. Occasionally a distinct basal streak. Inner transverse line barely visible, the outer one frequently distinct and dentate. Orbicular and reniform stigmata almost extinct, whitish with faint dark surrounds. Subterminal line scarcely indicated by whitish streaks. Marginal line consists of indistinct lunules. Fringes yellowish. Hindwings uniform grey, somewhat paler than forewings, rather darker towards margin, usually with angulated discoidal spot. Fringes yellowish. Underside monotonous grey-white, discoidal spots on all wings, more or less distinct. Wing expanse 28 mm. Aksu, June.

clauda. **M. clauda** Pglr. (Vol. 3, p. 29, pl. 6 c). The illustration in the main Volume is quite good, but inclined to be too dark, it should be paler mouse-grey and the transverse lines are less prominent. Antennae of ♂ serrate and ciliated. In some specimens the transverse lines are almost extinct, so that same appear unicoloured mouse-grey. Hindwings more inclined to be grey than white. Underside almost uniform silvery grey-white, hindwings paler. Wing expanse 20—30 mm. Asia Minor and Turkestan.

expugnata. **M. expugnata** sp. n. (5 e ♂ type). I am classifying this species temporarily here in spite of the different structure of the ♂ genitalia. Antennae of ♂ serrate and ciliated. No pronounced crater. Fore tibiae with not very significant spurs. In colour and appearance like *clauda* Pglr., but larger 33—35 mm. Forewings uniform ashy grey, somewhat suffused with brownish, marginal area rather darker. Basal line, claviform stigma and transverse lines are absent, only indicated by traces. Orbicular and reniform stigmata rarely discernible, then somewhat whitish with slightly darker surrounds. Median nervure sometimes faintly prominent with whitish. Small dark lunules at margin. Fringes brownish with a fine yellowish marginal line. Hindwings somewhat paler, dusky at margin. Fringes pure white. A distinct discoidal spot is present. Underside glossy brownish white, hindwings almost white. Central area of forewings dusky, marginal area much paler. Hindwings with prominent discoidal spot. Both wings with distinct marginal line consisting of dark lunules. Abdomen with yellowish red anal tuft. Aksu, Altyn-tag.

21. Genus: **Agrotis** O. (*Feltia* Wkr.)

In outer characteristics almost identical with the Genus *Euxoa*. The protuberance on frons begins to assume various shapes. In one case it forms a regular crater, in another merely rough irregular protrusions and then again there is merely a more or less deep vertical groove or rill. In certain species, for instance *ypsilon* Rott., the frons is usually smooth, but specimens occur with a more or less pronounced, coarse protuberance. However the considerable and constant difference in the ♂ genitalia is very characteristic. Whilst in *Euxoa* and the sub-genus *Meseuxoa* there is always a distinct bifurcated clasper, in *Agrotis* (*Feltia*) there is always only a single prong. Corona as in the Genus *Euxoa*.

In his Cat. Lep. Phal. IV 1903 HAMPSON only classified two palaearctic species in this Genus, *honesta* Styr. and *exclamationis* L. He must have allowed himself to be misled by outer characteristics and cannot have studied the genitalia sufficiently, because a great number of the species which he classified as *Euxoa*, are *Agrotis* (*Feltia*) as will be seen from the large number of the species following here.

The biology of the species of the Genus *Agrotis* has already been thoroughly studied, chiefly because the larvae are partly pests to agriculture. The eggs are almost without ridges, occasionally weakly ridged. Generally they are laid loose or in clusters on or in the earth. An inclination of the Genus towards more recent Genera seems to be indicated by the fact that an american species (*Feltia subgothica* Hw.) which occurs in North America as a pest, does not deposit its ova on or in the earth, but in the flowerheads of *Helianthis tuberosa* and the young larvae feed therein for a period. The larvae are as a rule typical subterranean larvae, like those of the Genus *Euxoa* and outwardly very similar to same. However various species already show a tendency to leave the earth and exist above the surface.

This genus is also best subdivided into Sections according the formation of the antennae.

Type: *Agrotis (Feltia) segetis* Hbn. (Tentamen ined.) = *segetum* Schiff.

I. Section: ♂ antennae heavily pectinated to apex or almost to apex.

A. baetica Bsd. (Vol. 3, p. 24, pl. 5 c) classified by STAUDINGER under *cladocera* Rbr. as "*Agrotis*?". It is *baetica*, perhaps only a form of the subsequent *graslini* Rbr. The type is not well preserved. The illustration in the main Volume is not good and therefore the species is being illustrated again (5 f). It is very like *graslini* but more brightly coloured, veins of hindwings brownish. Only found on the coast of S. Spain, Cadiz. Early stages unknown.

A. graslini Rbr. (Vol. 3, p. 36, pl. 7 i). Two varieties have been described and they do not seem to me *graslini*, justifiable. The one — v. **joannisi** Gl. et le P. from the coast of Morbihan. It is more yellow-brown to reddish *joannisi*, yellow than ochreous. Markings, claviform stigma etc. more prominent. The other form: — **gouini** J. de Joan. *gouini*, neither ochreous nor reddish yellow, but of a variable brown varying from olive-green to grey and yellow-brown. Further STRAND has denominated as ab. **rufotincta** Strd. (= ab. 1 *Hmps.*) specimens in which the cell of *rufotincta*, forewings with adjoining areas is a vivid reddish. The type form and all other forms from the west coast of France. Ova white with faint ridges, larvae subterranean, feeding on low growing plants. It is almost colourless with indications of lateral lines. Pupa not described.

A. (?) arenosa Stgr. (Vol. 3, p. 33) (5 f). According to the perfectly preserved ♀ type this should be *arenosa*, classified here and is a genuine species. Is not related to *vitta* Esp. Similar to *baetica* Bsd., underside is identical with same. Also similar to *graslini* Rbr., wings rather more pointed, claviform stigma is much smaller than in *graslini*, costal streak of *arenosa* is whiter, the distinct discoidal spot on underside of forewings, which is almost always present in *graslini*, is completely absent in the type of *arenosa*. Thorax of *graslini* is more densely covered with scales and hairs. The illustration in Rambur, Cat. S. And. is very good, only much too dark. South Andalusia, Catalonia. Early stages unknown.

A. lanzarotensis Rbl. (Vol. 3, p. 24, pl. 15 k).

lanzarotensis.
dirempta.

A. dirempta Stgr. (Vol. 3, p. 24). This species described from a single defective ♀ Type ex coll. Stgr., has latterly been found in quantity at Algiers, in Morocco, Tunis and southern Spain. In general appearance *dirempta* can scarcely be differentiated from certain forms of *crassa* Hbn., but may be considered a genuine species on account of the fact that the pectinations of antennae extend to extremity of apex or almost so. — **castellana** Fdz. from Ciudad-Real, Spain is in my opinion = *dirempta* Stgr.

castellana.

II. Section: ♂ antennae heavily pectinated 2/3rds of their length.

A. ypsilon Rott. (Vol. 3, p. 37, pl. 8 c) (= *suffusa* Schiff., *spinula* Esp., *spiniferus* Hw., *idonea* Cram., *ypsilon*, *robusta* Blanch., *bipars* Wkr., *frivola* Wallgr., *aureolum* Schaus.). A cosmopolitan species. It also occurs in Labrador (coll. CORTI). Varies considerably in colour and markings, for instance specimens occur with forewings almost completely black from base to outer line (5 f), another specimen which is illustrated (5 f) has a wide pale costa from base to apex of wings. DANNEHL has an aberration with darkened forewings, which he has denominated as — ab. **fusca**. *ypsilon* occurs from spring till November, in many districts it hibernates. In *fusca*, some localities it is double brooded. Ova dull yellow with delicate ridges, larvae subterranean, plump, cylindrical, scarcely marked at all, with dark warts, pupa fuscous with 2 cremaster spines.

A. segetis Hbn. (Vol. 3, p. 25, pl. 5 d) (= *segetum* Schiff., *praecox* Hbn., *fervida* Hbn., *sicula* Bsd., *segetis*, *dimidia* Zell., *sicania* Gn., *marginalis* Wkr., *obliviosa* Wkr., *aversa* Wkr., *conecta* Wkr., *denticulosa* Willgr., *conspurecata* Wkr., *repulsa* Wkr., *certificata* Wkr., *lassa* Swinh.). A species that varies to an extraordinary extent in colour and markings and which has therefore given rise to a large number of superfluous denominations (compare main Volume). The form mentioned there — ab. **pallida** Stgr. (Vol. 3, pl. 5 d e) is no doubt the *pallida*, predominant form and subspecies of central Asia. It occurs occasionally in Europe. One name of an older denomination of an aberration is missing in the main Volume. — ab. **anthracitica** Alph. with unicoloured black *anthracitica*, forewings. Such specimens occur in all degrees of transition. Latterly further names have been given: — ab. **albiptera** Trti. from Cyrenaica has snow-white hindwings, — ab. **minorata** Trti. is a small form (spring generation *albiptera*, from Cyrenaica, flying in May—June); — ab. **pseudocos** Trti. denotes a small ♀ resembling *cos* Hbn., unicoloured *minorata*, with distinct transverse bands, from Cyrenaica. — ab. **unicolor** Pill. denotes unicoloured specimens without *pseudocos*, any markings. — v. **pallida-obsoleta** is a name given by DANNEHL for the southern race from Terlan, Bolzano, *unicolor*, southern Italy with grey-yellow colouration, orbicular stigma and outer line absent, marginal spots prominent, *pallida-obsoleta*. Occurs in the entire palaearctic territory, in polar regions only up to 60—62° northern latitude. It is also found in India, South Africa, Oceania and North America. It occurs in one or two or even more generations from March to November according to the locality. Ova yellowish white, faintly ridged, subterranean larvae, plump.

grey with pale dorsal line, brownish collateral lines and black warts and spots. Pupa fuscous with 2 short cremaster spines. — **glaucina** Kozh. (5 f) (= *E. glaucina* Kozh.). From a ♀ from Siberia (Minussinsk). Is said to resemble *robusta* Ev. From two ♀♀ received from the Petrograd Museum however this is nothing else than a *segetis* with pale grey-cloured forewings, such as occur among ♀♀ from Asia Minor and occasionally in Europe. In the best case it might be deemed a race of *segetis*.

mauretanic.

A. mauretanic A. B.-H. (5 g). Brownish yellow, orbicular and reniform stigmata distinct, claviform stigma small and black. Central area enclosed by black dentate, distinctly marked transverse lines, blackish sagittate spots. Distinct black lunules. Fringes subdivided, pale edge. Hindwings white, brownish yellow at margin with black central spot, which is sometimes absent. Fringes pure white outwardly. Underside of forewings with faint indication of a band, indistinct central spot, hindwings paler with a band indicated at costa, sometimes with indistinct central spot. South Oran, May—June. Early stages unknown.

ingrata.

A. ingrata Btlr. (5 g). Is considered by many authors to be synonymous with *segetis* Hbn. When comparing series one has the impression that they are two separate species. It is quite as similar to *corticea* as it is to *segetis* Hbn., differs from the former however by its larger size, sometimes being double as large. It has much larger maculae and has a more or less pale outer edge to the forewings. Just this pale edge enables one to differentiate *ingrata* from *segetis* and further the much browner hindwings which are the rule in the ♀. Japan. Early stages unknown.

fuscosa.

A. fuscosa Btlr. (5 g). An uncertain species. No doubt it is related to *segetis* Hbn. and *corticea* Hbn. Forewings similar to *segetis*, but in what are in my opinion typical specimens they seem to be suffused with pale lilac. The outer transverse line is usually very indistinct, hindwings according to BUTLER are as in *saucia* Hbn., which I cannot endorse, they are paler, also in the ♀. Japan, Transbaikalia (specimens from the latter locality are perhaps a special race). Early stages unknown.

corticea.

A. corticea Schiff. (Vol. 3, p. 26, pl. 5 f) (= *transversa* Wkr., *fraterna* Moore, *sincerii* Frr.). A species that varies considerably in colour and markings. It is found throughout Europe with the exception of the extreme north, further in Asia and occurs up to abt. 2000 m altitude in mountainous regions. According to the locality it occurs from May—September but generally only in one generation. To be added to the numerous denominations (compare main Vol. 3) are the following: — f. **neocomensis** Roug. almost unicoloured, of the markings of forewings only the 3 maculae are retained. — ab. **obsoleta** Meade-Waldo, claviform and orbicular stigmata barely visible. — ab. **unimaculata** Masl. only shows reniform stigma, forewings are not speckled. — ab. **orbiculella** Strd. (= ab. 1 *Hmps.* Cat. Lep. Phal.) has large quadrate orbicular stigma. — **strigosa** Strd. from Norway has generally very pronounced transverse lines. The outer marginal band of hindwings merges gradually into the paler basal colour and very often the hindwings are uniformly dark over their entire surface. This form however occurs also in other localities. — **amurensis** Stgr. from the Amur is certainly a genuine subspecies, which however varies considerably. I am illustrating a specimen (5 g) such as occurs profusely in China, Sajon, the Amur territory, Vladivostok etc. Ova of *corticea* are brownish white, ribbed, with brown middle area and a similar coloured spot on the micropyle. Larvae subterranean, grey-brown with pale dorsal line and darker collateral lines, scutellum leathery, yellow-brown. Pupa yellow-brown with 2 cremaster spines.

corsa.

A. corsa Pglr. (= *corticea* v. *corsa* Pglr.) (5 g ♂). I am of the same opinion as SCHAWERDA that this is probably a genuine species. The characteristics of *corsa* are the more or less heavy white markings of veins of forewings, the heavy admixture of white on the inner and outer transverse lines, often a pronounced whitish suffusion in outer area in which the whitish outlined sagittate marks are situate. Other markings are like *corticea*. The stigmata, especially the orbicular, are usually filled with white with brown centre. Corsica, July to August. Early stages unknown. SCHAWERDA has denominated the following aberrations: — ab. **pallida**, pale brown; — ab. **obscura** black-brown, the lighter transverse lines are quite obscured.

pallida.
obscura.

justa.

A. justa sp. n. (5 h ♂ type). Forewings quite pale brownish white, only the costa definitely red-brown expanding to a spot at the outer margin. A few whitish specks on costa. Basal line indicated by wide whitish spots, inner line double, whitish outwardly, the intermediate space being brown. Claviform stigma exceedingly clearly marked, red-brown, orbicular stigma small, round, pale with dark central spot and surround. Reniform stigma distinct, large, dark brown with black surround, extending somewhat along the vein towards the base. Outer transverse line faint, subterminal line pale, a row of lunules in front of the yellowish marginal line, fringes yellowish brown. Hindwings almost unicoloured brownish grey, fringes lighter. Hindwings transparent, veins brownish. Tegulae large, grey-white, abdomen of same colour as hindwings. Underside of forewings almost monotonous grey-brown, hindwings considerably paler with dark discoidal spot. Seening (Thibet), July.

praedicta.

A. praedicta sp. n. (5 h ♂ type). Similar to the previous species, but forewings not by any means so clearly marked. Claviform stigma with pale centre, orbicular stigma large, reniform stigma without the projection to the base, on the contrary with a similar projection towards the outer margin. Inner and outer

transverse lines distinct, the outer area somewhat paler with more or less distinct sagittate marks that are absent in *justa*. Underside of fore and hindwings with distinct band, hindwings with discoidal spot. Kuku-Noor, Ussuri.

A. *justifica* sp. n. (5 h ♂ type). Forewings almost uniform purple-brown and glossy. Basal line absent. *justifica*. inner transverse line double, somewhat pale with dark edge on each side. Claviform stigma black, very small and short, pointed. Orbicular stigma only slightly contrasting with ground colour, brownish, scarcely any outline; reniform stigma somewhat quadrate, the centre as the wings, a dark edge on inner and outer sides. Outer transverse line delicate, double and faint. Marginal area uniform like the wings. A whitish marginal line, fringes brown, darker at base. Hindwings almost unicoloured grey-brown, veins darker, margin and fringes as forewings. Tegulae and abdomen of the same colour as forewings. Underside glossy, uniform grey-brown, hindwings with a discoidal spot. Szechuan, China.

A. *tancrei* Corti (5 h ♂ type). Similar to *corsa* Pglr. Head and thorax pale grey-brown, collar darker. *tancrei*. Tegulae whitish. Abdomen grey-brown. Forewings pale reddish grey. Basal transverse line double, with pale edge inwardly. Area between basal line and inner transverse line dark brown and marbled. Claviform stigma very distinct, dark. Orbicular and reniform stigmata situate in a brownish marbled central area. The former is small and contrasts strongly from reniform stigma, the latter is much larger with pale centre and dark surround. Outer transverse line almost obsolescent in patches, then again distinctly double with pale centre. Subterminal line indistinct. Marginal line pale brown, in front of same lunules. Fringes mottled grey-brown. Hindwings pale grey-brown, almost unicoloured, somewhat paler towards base. Fringes grey-white. Underside of wings uniform brownish grey with indications of a transverse band. Discoidal spot invisible. ♀ considerably darker than ♂. East Turkestan, Fort Naryn, also from Karagatai and the Alexander Mountains. Early stages unknown.

A. *tokionis* Btlr. (Vol. 3, p. 38, pl. 8 c) (= *nigricostata* Stgr.). These two species are without a doubt *tokionis*. identical. *tokionis* varies considerably, specimens occur with costa scarcely darkened. The illustration in Vol. 3, pl. 8 c is not good and we are illustrating a specimen here (5 h ♂) with very dark costa. *tokionis* is generally much larger than *corticea* Schiff. Antennae of *tokionis* respectively *nigricostata* have much shorter pectinations than other species of this group, for instance *corticea*. Perhaps it should be classified in another group. Japan, Amur territory, Thibet.

A. *ruta* Ev. (Vol. 3, p. 26) (5 i ♂) (= *Xylina ruta* Ev.). A wide-winged species (up to 47 mm) which *ruta*. varies considerably in colour and markings. Antennae with shorter pectinations than in *trifurca* Ev. Forewings black-brown more or less heavily admixed with ashy grey, sometimes the ground colour is whitish ashy grey only the wide costa, claviform and reniform stigmata being bold dark brown. Transverse lines often very distinct but they can be absent. Subterminal line whitish, dentate, sagittate marks sometimes present. Orbicular stigma occasionally absent, usually pale, round or extended to oval shape. Thorax dusted with ashy grey. Hindwings brownish. ♀ generally larger than ♂, much darker with little marking. Hindwings similarly darker. Underside very dark, hindwings paler, almost invariably with more or less distinct bands on all wings and dark discoidal spots. Siberia, Irkutsk, Kentei. Early stages unknown.

A. *patula* Wkr. (= *septentrionalis* Mschlr.) (Vol. 3, p. 26, pl. 5 g). Varies considerably in colour and *patula*. markings. The illustration in Vol. 3 is good, the ♀ is now illustrated here (5 i), it is almost as clearly marked as the ♂ but has paler hindwings. Other ♀♀ occur having obsolescent markings and dark hindwings. Perhaps this is only a variety of *cinerea* Schiff. Early stages unknown, pupa pale brown with 2 cremaster spines. Labrador and Siberia in August.

A. *crassa* Hbn. (Vol. 3, p. 24, pl. 5 a) (= *huguenini* Rühl). RÜHL's type seems to have got lost, in its *crassa*. place in the collection of HUGUENIN in Zürich there is a *subgothica* Hw. from North America. *crassa* varies in markings, colour and size considerably, but also occurs in pronounced local races. First we must name — ***lata* lata.** *Tr.* (Vol. 3, p. 24, pl. 5 a) (nec. *Rothsch.*, = *dirempta* Stgr.). This is often not recognised as a form of *crassa*, the type of which originates from Sicily. The illustration in Vol. 3, pl. 5 a is not good and we are giving another illustration here (5 i ♂). The denomination *lata* must be taken relatively, there are quite small *lata* and much larger *crassa*. The antennae of the ♂ of *lata* are more heavily pectinated than in *crassa*, nevertheless I consider *lata* to be only a race of *crassa*. *lata* occurs everywhere as an aberration, but is limited to Italy, Sicily, Dalmatia and Greece as a race, occurring perhaps also in Herzegowina and Bosnia (REBEL) and Spain (RIBBE) and Syria. *lata* is as a rule much paler than *crassa* and often the round orbicular stigma has a whitish surround. — ***golickei* golickei.** *Ersch.* (Vol. 3, p. 24, pl. 5 b) only occurs in W. Asia. The illustration in the main Volume is quite good, only the hindwings are much whiter. It is a very pale form of *crassa*. — ***afflouensis* Deckert** i. l. (5 i ♀) appears to be *afflouensis*. a genuine race from N. Africa, Malta, Syria and perhaps other localities. It has unusually large orbicular stigma, pale, round with very pale surround, markings distinct, especially the black markings. Hindwings of ♀ more or less dusky, sometimes almost black. Underside of ♀ with very clear dark bands, discoidal spots heavily marked and black on underside of all wings. With the wide range of variety in *crassa* the denomination of many aberrations has been unavoidable. — ***brunnea* Warren** (Vol. 3, p. 24, pl. 5 b) also occurs in Spain. WAGNER *brunnea*.

leucoptera. denominates the ♀♀ with white wings, which are not of very rare occurrence as — ab. **leucoptera**. — DANNEHL denominates ♀♀ which are completely monotonous brown-black in basal, central and outer areas, with sharply marked band markings and heavy outer lines with light edges as — ab. **hellwegeri**; despite the fact that there are various degrees of transition forms. — ab. **subalpina** denotes the dark form denominated by DANNEHL in *atrata*. which also the outer margin has the identical brown-black shade. — ab. **atrata** Schaw. denotes dark ♀♀ specimens from Corsica with extreme black-brown forewings and almost extinct markings. The same author names a small ♂ from Aragon as ab. (var. ?) **modesta** with forewings of uniform buff colour, markings faintly indicated, the transverse double lines barely visible. The proximal line very pointed at inner margin and projecting outwards, sagittate mark and the broad quadrate reniform stigma with very faint darker, not clearly visible, surround. Hindwings white. Underside white, devoid of markings. Antennae as in *crassa*. — ab. **ochrea** Culot denotes an ochreous variety of *crassa*. — ab. **parvisignata** Escalera is a still paler form than ab. *ochracea*, it is almost whitish with nearly completely extinct markings. The early stages of *crassa* are pretty well known. Ova (from the Tyrol) were according to my observations large, irregular and without ridges, merely buff coloured, larvae typically subterranean, maggot-like, pale dorsal line and dark subdorsal, a delicate pale lateral line. It occurs now and then, for instance in Alsace Lorraine as a pest in vineyards. Pupa fuscous with 2 cremaster spines. Pupation in an earthen cocoon. It occurs throughout Europe (Russia in the south), the northernmost limit, according to WARNECKE, would be Pommerania and Mecklenburg (occasionally, singly in Schleswig-Holstein), further in aberrative forms or local races in the Caucasus, Askhabad, Anatolia, Altai, Pontus, Tauria etc. The f. *golickei* occurs in Asia Minor, Armenia, Ferghana, Ala-tau, Tura etc. According to the locality it occurs from July to October, *golickei* is found in May and the autumn, in two generations.

fulva. **A. fulva** Trti. (5 i) (= *crassa lata fulva* Trti.). In my opinion a genuine species. In its morphological characteristics like *lata* Tr. A large species, arrangement of markings like in *crassa* Hbn., but the forewings are intensively brick-red to ochreous. Hindwings pure white. Hindwings of ♀ very dusky. It occurs exclusively in sandy localities. Larvae as *crassa*, however not grey-white but dark rusty brown, somewhat of the same shade as the moth. They are inclined to come out of the earth or sand. It occurs in autumn and January (KRÜGER). North Africa, Bengasi, Fuath, Tobruk.

obesa. **A. obesa** Bsd. (Vol. 3, p. 24, pl. 5 a). The illustration in the main Volume is not good and it is being repeated here (5 k ♂). Markings and particularly colouration are liable to strong variations. Some ♂♂ have almost grey forewings, others heavily suffused with red-brown and others with rose, ♀♀ occur with almost black forewings and again with almost white ground colour. ♀♀ with almost completely white hindwings as in *crassa* Hbn. occur. Orbicular stigma is not quadrate, large, but always much smaller than the reniform and claviform stigmata. It is often round, usually however longish, oval and often extended to a point. In the outer area there are usually sagittate marks, which are only very rarely completely absent. — *scytha* Alph. (Vol. 3, p. 24, pl. 5 a). Also this illustration is not good, we are giving a fresh one (5 k ♂). In the main Volume *scytha* was described by WARREN as a genuine species, whilst I consider same to be a race of *obesa* Bsd. It is a much paler, less pronouncedly marked race, otherwise however with the characteristics of *obesa*, occurring in S. Russia, the Caucasus, Turkestan, Persia, Armenia, Anatolia in August and September. In the Taurus in August a further nice race occurs, namely — **fusca** nov. (5 k ♂ cotype) which is more or less characterised by the darker hindwings of the ♂. Also the ground colour of the forewings is inclined as a rule to be dusky. — *lipara* Rbr. (5 k ♂), which is usually considered synonymous with *obesa* Bsd., I consider to be a clearly defined race of N. Africa, which is much more brightly coloured and when viewed in series makes a different impression from the type form. September—October. CARADJA has denominated a nice race from Rumania as — **nivea** Caradja which has pure white ground colour to forewings without a trace of yellow, with prominently distinct black markings. — ab. **rufina** Escalera denotes a correspondingly ochreous red form from Spain, like ab. *ochrea* Culot of *crassa* Hbn. The main form occurs in Spain, Portugal, S. France, Italy. The early stages of *obesa* have yet to be thoroughly studied. Ova large, buff coloured without ridges, larvae subterranean, cylindrical, stout, dark brown-red with a dorsal and fine grey-black subdorsal line. Ventrally grey-green, head small, glossy grey-brown. The description of MILLIÈRES appears to be erroneous. Pupa brown. The larva of f. *scytha*, according to WAGNER, resembles that of *crassa* Hbn., earthy colour with brownish wrinklins, dorsum paler, yellowish brown, 2 subdorsal lines. Head small, yellowish brown. Scutellum scarcely discernible. Stigmata jet-black. Subterraneous. Pupa brown, cremaster with 2 stout bristles.

characteristica. **A. characteristic**a Alph. (Vol. 3, p. 26, pl. 12 f). The illustration is not good and we are illustrating a ♂ afresh (5 l) that definitely belongs hereto. The species was described by ALPHÉRAKY from a large (50 mm) single ♀ from Ordos (China). The ♂♂ are smaller, the largest in my collection measures 38, the smallest 34 mm. They resemble *fatidica* Hbn. in the markings, forewings are grey-white or yellowish grey to brown, orbicular stigma small, round, sometimes oval, hindwings much paler than in normal *fatidica* ♂♂. Chotan, Sarepta, Kyssyl-Yart. The ♀ of ALPHÉRAKY was captured in September. Early stages unknown. — **mirifica** Wgr. is, in my opinion, synonymous with *characteristica* Alph. Described by WAGNER from a ♂ (42 mm). Central Asia.

A. fatidica Hbn. (Vol. 3, p. 25, pl. 5 c) (= incurva H.-S. see Stgr.). ♀♀ with short wings, size colour and *fatidica*. markings vary fairly considerably both in ♂ and ♀. There are quite black ♀♀ and again such with bold markings, the ♂♂ occur pale and dark with heavy or faint markings. There is a completely coffee-brown ♂ without white in the collection of ZELLER at Zürich. In the museum at Munich there is 1 large ♀ with completely developed wings, which I consider to be *fatidica* Ev. v. *bombycia* Ev. and not *characteristica*; from Central Asia. The entirely black ♀♀ are denominated by DANNEHL as — ab. **monedula**. A high alpine insect, occurring in Switzerland at *monedula*. between 1800—2700 m altitude (VORBRÖDT). Besides the localities mentioned in the main Volume, also recorded from the Tyrol, Styria, Bulgaria, Albania, the Rhodope Mountains. July—August. In Central Asia, Mongolia etc. — **bombycia** Ev. (6 a ♂) (= Hadenia [Neuria] *bombycia* Ev.). Markings as *fatidica*, also very similar to *bombycia*. *robusta* Ev. Forewings darker, more inclined to black-brown, veins and transverse lines pale, brownish, claviform stigma circumscribed by black, hindwings brownish grey with similarly coloured fringes. ♀ so far unknown. A somewhat uncertain form, perhaps belonging to *robusta* Ev., possibly a genuine species. Siberia, Irkutsk, Minussinsk, Unga, Mongolia, Manchuria. Early stages of *fatidica*: ova large, irregular, unicoloured yellow-grey or grey-white, pretty well ridged. Larvae subterranean, cylindrical tapering off anteriorly, dark grey, a narrow dark dorsal line, a double dark narrow subdorsal line, grey-green ventrically, head reddish, waxy yellow with 2 heavy crescent marks. Scutellum glossy buff with dark spots. Pupa red-brown with 2 cremaster spines.

A. robusta Ev. (Kind. i. l.) (Vol. 3, p. 25, pl. 5 e ♀) (= ? *trifurca* H.-S. nec Ev.). A much discussed *robusta*. species. Perhaps only a form of *fatidica* Hbn. ? or of *trifurcula* Stgr. ? It is a large species, up to 43 mm. Markings more definite than in *fatidica* Hbn. According to ERSCHOFF it is only a variety of *trifurca* Ev. Nevertheless *robusta* may be a genuine species. It varies considerably in colour and certain specimens very closely resemble *trifurca*. Most specimens however have a heavy whitish, sometimes pure white median nervure and subcostal vein, such as is never found in *trifurca*. In that species they are always yellowish to brownish. Further *trifurca* has always a more or less wide pale inner margin to forewings, which I have never seen in *robusta*. Orbicular stigma small, round or oval, usually with distinct white circumscription. Sagittate marks usually clear situate between the white dusted veins. The ♀ is fully developed, inclined to be larger than the ♂, usually darker, sometimes almost black. Altai, Urals (v. ?), Sajon, Transbaikalia. Early stages unknown.

A. trifurca Ev. (Vol. 3, p. 26, pl. 5 e). The antennae of ♂ somewhat more heavily pectinated than in *trifurca*. *ruta* Ev. The illustration in the main Volume is fair, only the median nervure with the 3 white points should be much more distinctly pale, similarly the inner margin of forewings (compare remarks under *robusta*). Outer area of forewings much darker than the wing itself, sagittate marks often very distinct. Claviform stigma dark brown to black, elongated, extending almost to under the reniform stigma. In *robusta* it is wider and extends at best only to under the orbicular stigma. Hindwings dusky brown, somewhat paler in centre. The species appears to vary little. The ♀ is fully developed, as large as the ♂, abt. 38 mm. Markings and colour as the ♂. Eastern Russia, Kasan, Urals, Orenburg, Ussuri, Amur, Prokofka, Vladivostock. End of June to August. Early stages unknown.

A. trifurcula Stgr. (Vol. 3, p. 26, pl. 5 e). The illustration in the main Volume was not a success, a ♂ is *trifurcula*. being illustrated here (5 l). Perhaps it is only a form of *robusta* Ev. with which it agrees almost exactly in point of markings. — The same applies to **sajana** Stgr. i. l.; when seen in long series both *trifurcula* and also *sajana* *sajana*. appear to differ slightly, being much paler (against darker specimens), generally the grey-white ground colour is predominant. The specimens appear much more brightly marked and are generally decidedly smaller. Dark and large specimens also occur and among *robusta* occasionally one finds quite small specimens. The smallest specimen in my collection expands only 30 mm. The ♀ on the other hand, assuming a specimen from the White Mountains to belong hereto, has only semi-developed wings of 21 mm expanse. It has the markings of *trifurcula*, abdomen is long extended, hindwings dark. Mongolia, Changai, Unga, Siberia, Kentei. Early stages unknown.

A. atra sp. n. (5 l ♂ type). Same size as *trifurca* Ev. and doubtless very close to same. Forewings dark, *atra*. glossy black-brown, basal line, inner transverse line and orbicular stigma obsolescent or barely visible, also reniform stigma very indistinct with pale centre and dark surround. Outer transverse line indicated by a series of dark spots, sagittate marks barely visible. Orbicular and reniform stigmata situate in a broad blackish streak. Lunules before the margin, then a pale yellowish marginal line, fringes brownish. Hindwings dusky brown, rather paler in centre. Thorax pale grey. Underside dusky brown, almost unicoloured, somewhat paler in centre, hindwings generally somewhat paler, especially in central area in which a distinct discoidal spot is situate. The ♀ is fully developed and like the ♂. China, Yunnan.

A. sabulosa Rmbr. (Vol. 3, p. 25, pl. 12 a). The illustration in the main Volume is poor, a fresh illus- *sabulosa*. tration is given here (6 a ♂). Only very few specimens are known, but certainly a genuine species. Andalusia.

A. vestigialis Rott. (Vol. 3, p. 36, pl. 7 i) (= *valligera* Hbn.). Hindwings rarely quite white, generally *vestigialis*. grey, dusky, especially at margin, veins dusted with grey. A species that varies enormously in colour and markings. Quite black specimens are known and exceedingly pale, almost white ones, some with quite pale stigmata, almost without transverse bands, with extinct orbicular stigma etc. In consequence a large number of aberrations have been named (compare main Volume). Of new denominations we are enumerating: ab.

albidior. **albidior** *Pet.* with whitish forewings; — ab. **olivacea** *Htg.* differing from *albidior* by the olive ground colour; —
olivacea. f. **violascens** *Heydem.* are specimens with violet-rose hue at inner margin and marginal area, especially intensively
violascens. on costa of forewings, on buff ground colour. — f. **pseudochretieni** *Heydem.* are specimens without orbicular
pseudo- stigma; — ab. **extersa** *Slats.* (= ab. *Hmps.*) is uniform brownish grey, all stigmata being absent. — ab. **pallida**
chretieni. is the denomination given by SPULER to the south Russian, paler yellowish coloured specimens with whiter
extersa. hindwings. The so-called — ab. **angustipennis** *Bart.* differs from the usual *vestigialis* by the somewhat narrower
pallida. wings, which can occasionally occur almost anywhere. — (ab.) **amurensis** *Stgr.* are predominantly dark, blackish
angusti- specimens, often with dark costa and distinct dark transverse lines and stigmata; from the Apfel Mountains and
pennis. Kentei. Nevertheless paler specimens also occur there. Early stages: ova not yet described. Larvae subter-
amurensis. ranean, ashy grey with delicate dorsal line and collateral lines, head and scutellum brown, can scarcely be
differentiated from the larvae of *ripae* *Hbn.* Pupa brown with 2 cremaster spines. Flight July-November
according to locality and climate, possibly in 2 generations. North, East and Central Europe excluding the
polar regions, Spain, Italy, Corsica, Crimea, Sarepta (v.?), Siberia, Altai (v.?).

bifurea. **A. bifurca** *Stgr.* (Vol. 3, p. 25) (5 k). Size abt. 33 mm. Thorax and forewings grey, the latter with white
outlined mediana, bifurcated outwards. Claviform stigma brownish, elongated, extends below the median
nervure obliquely downwards in a broad brown streak. The other stigmata pale with dark surrounds. Transverse
lines are absent. Sagittate marks are absent, rarely faintly indicated. Hindwings pure white with a barely
visible darker marginal line. No discoidal spot. Underside impure white, bands are absent. All wings with
distinct central spot. Saisan, September. Early stages unknown.

stabilita. **A. stabilita** *Corti.* Markings and colours exactly as *bifurca* *Stgr.* and for this reason I am not giving an
illustration. Perhaps the species is synonymous with the preceding one, but the antennae have a slightly different
structure of the upper pectinations, this may scarcely be deemed sufficient for the creation of a separate species.
Fort Naryn, Turkestan.

quadrigera. **A. quadrigera** *sp. n.* (6 a ♂ type). Is possibly only the hitherto undiscovered ♂ of the subsequent species.
Forewings pale grey-brown, markings very distinct. Costa whitish to reniform stigma and to below the oval,
grey orbicular with its dark surround. In the basal area, below this white margin a dark oval mark with pale
circumscription to which the wide dark velvety brown, almost completely quadrate claviform stigma is attached.
Reniform stigma large, irregular, dark brown edged by pale anteriorly and dark posteriorly. Instead of sub-
terminal line there are dark sagittate marks intersected by the whitish nervules to the margin of wings. Hind-
wings white-grey, heavily dusted with brownish. Distinct discoidal spot. Underside grey-brown, hindwings
considerably paler, discoidal spots on all wings. Urals in August.

atridi- **A. atridiscata** *Hmps.* (= *Euxoa basigramma* *Hmps.* nec *Stgr.*). Denominated from 2 ♀♀. Compare
scata. previous species. Hindwings grey, admixed with red-brown with darker terminal line. Underside white,
suffused with red-brown, hindwings with brown discoidal spot. 40 mm. Thibet, Gyantse. At an altitude of
abt. 4000 m. June.

chretieni. **A. chretieni** *Dum.* (Vol. 3, p. 25, pl. 5 c). Orbicular stigma quite extinct, only rarely indicated by a
small black dot. It does not appear to vary much, nevertheless I have a small ♂ with completely dark red-
lafauryi. brown forewings to the outer transverse line and dusky hindwings. — **lafauryi** *Dum.* is smaller, 31 mm instead
of 38 mm; paler, markings more indistinct. The "M" shaped mark below the reniform stigma as in *chretieni*,
which occasionally is absent, is replaced in *lafauryi* by an open angular mark. Claviform stigma, which in
normal specimens of *chretieni* is elongated and heavily brown, is replaced in *lafauryi* by a conical elongated
stigma with pale centre and dark circumscription. This however also occurs in *chretieni* from Castile. *chretieni*
occurs in Castile, Segovia, S. Ildefonso in altitudes of abt. 1300 m. It is also said to occur at Albarracin, Aragon,
but this is doubtful. *lafauryi* occurs on the sea coast of south France, the lands around the Bay of Biscay.
chretieni occurs in June—July, *lafauryi* in April. Early stages unknown.

endogaea. **A. endogaea** *Bsd.* (= *arenicola* *Stgr.*) (Vol. 3, p. 26, pl. 5 g). The illustration in main Volume is not good,
the species is being illustrated afresh here (6 a ♂). It appears to vary very little. Early stages: ova not yet
described, larvae known but not described (BELLIER), it is said to live in the sand and feed on grasses. Wet sea
sand is not harmful to same, even for extended periods. Pupa also not described. It occurs in Corsica and
Sardinia in 2 generations, May and October.

cinerea. **A. cinerea** *Schiff.* (Vol. 3, p. 27, pl. 5 g) (= *murina* *Ev.*). It varies considerably in markings and colour.
alpigena. — **alpigena** *G. Trti.* (6 a ♂). Type from the Abruzzi. This paler form of *cinerea* is the predominant form in central
Italy, southern France, the Pyrenees, Spain, occurring almost everywhere where *cinerea* occurs. The counter-
obscura. part is — **obscura** *Hbn.* nec *Tutt.* also mentioned later on in literature by TEICH as ab. *livonica* (Vol. 3, pl. 5 h)
obscura. and which also occurs everywhere among *cinerea*. — **obscura** *Tutt.* refers to a colour aberration of the english
pallida. *tephrina* *Stgr.* (Vol. 3, p. 27, pl. 5 g), similarly its forms — **pallida** and — **virgata**. In spite of its great variability
virgata. of colour and markings however *tephrina* is definitely a race, known hitherto only from England and the

(of colour and markings, however, *tephrina* is definitely a race, which has hitherto only been found in England and the Shetland Islands. Reports of its occurrence in Austria, Switzerland, South Russia, etc. refer only to aberrations of the main type. For instance very clearly marked aberrations of *cinerea* occur in which the outer transverse line is merged in a very heavy shadow. I have numerous such specimens from Vienna, Italy, Bulgaria, the former Austria, the Riviera, etc. which, however, also vary among themselves. An illustration of such a specimen is being given on Plate 7 a ♂. The so-called — v. **eximia** *Obth.* i. l. (CLOT) is *eximia*. only a sharply marked aberration of *tephrina*. — **fusca** *B.* has created much confusion. STAUDINGER considered it doubtful and it has often been mistaken for *patula* *Wkr.* = *septentrionalis* *Mschlr.* It is simply a dark ♀ of *cinerea* *Schiff.* — *cinerea* occurs in North, central and West Europe, excepting the polar regions, further in Spain, Italy, the former Turkey, Bulgaria, Bukowina, Albania, Bosnia, Herzegowina, etc., Urals South Russia, Caucasus, Pontus, Armenia, central Asia, Aksu. In Switzerland the species occurs up to 1900 m altitude. Early stages: ova yellowish white, irregular, grooved. Larvae subterranean, very similar to that of *exclamationis*, darker with fewer markings. Pupae brown with 2 cremaster spines. Imago flies from April to August.

A. turatii *Stdls.* (Vol. 3, p. 26) (51). HAMPSON considers this species synonymical with *cinerea* *Schiff.* *turatii*. Up to a few years ago I also doubted whether its claim to be a species was justified and held *turatii* to be a subspecies of *cinerea*. Today, however, having now a richer material at my disposal, I incline to think that *turatii* is actually a separate species. It varies extraordinarily; colour of forewings from an impure unicoloured white, similarly the thorax, to a dark rusty brown. The transverse lines are sometimes obsolete, sometimes most pronouncedly marked. Usually the orbicular stigma is absent, reniform stigma sometimes very distinct, sometimes as a ringlet with dark brown centre, sometimes as a large dark brown spot. Often both stigmata are entirely absent. The pectinations of the ♂ antennae of *turatii* are much further apart from one another and longer than in *cinerea*. It occurs in South France, Digne and Spain, Albarracin, Sierra Nevada? April-May. Early stages unknown.

III. Section, ♂ antennae more or less heavily dentate ciliate.

A. exclamationis *L.* (Vol. 3, p. 34, pl. 7 d). Varies very considerably in markings and colour. Therefore (vide Main Volume) a large number of aberrations have been named. For curiosity's sake I am giving an illustration (7 a) of — ab. **plaga** *Stph.*, which shows a specially fine aberration of markings. The pale — **serena** *Alph.* (7 d), which is the commonest form from Ferghana, Bokhara, Saraw, Amdo, and Yarkend, occurs in similar colouration as — ab. **pallida** *Tutt* in Spain, England, Esthland, and elsewhere. — ab. **cuspidata** *Culot* should in my opinion be placed with *plaga* *Stph.* In same the brown mark is dissolved into streaks or darts and stigmata are prominent. — ab. **posteli** *Culot* is a dark form of a ♀, in which mainly the outer area of forewings is particularly dusky. — ab. **dufranei** *Lamb.* is yellow-grey, with obscure transverse lines, reniform stigma half obliterated, orbicular stigma invisible and elaviform stigma almost obsolete. — ab. **conjuncta** *Hirschke* has a black longitudinal streak from lower edge of reniform stigma almost to the lower edge of the orbicular stigma. — **quadrimacula** *Wehrli* has an isolated dark brown spot between the stigmata, below the orbicular stigma. — ab. **wehrlii** *Vorbr.* is a ♀ form of — **picea** *Tutt* with widely ochreous lustrous base and transverse bands to forewings. Early stages: Ova impure white, micropyle brownish, grooved, a brownish ring in the upper third. Larvae not entirely typically subterranean. Pupae brown with 2 cremaster spines. *exclamationis* occurs according to the locality in one or two generations, from March to September, in mountainous districts from June-July throughout the palaearctic territory, excepting Mauretania and the Canary Islands. In mountainous regions it occurs up to 2000 m altitude.

We deeply regret to record the death on the 18th October 1932 of Dr. A. CORTI, who had done so much in regard to the compilation and elaboration of the data of this most difficult *Noctuidae* group. Not only will his premature death be a great loss to our scientific world, but we have lost a trusted friend and collaborator. His manuscript ended at the above paragraph, but thanks to the generous attitude of his family, his wonderfully rich collection and records, the evidence of his vast experience, have been placed at our disposal and they will enable the undersigned to attempt to deal with the remaining groups of this family. It may not be entirely possible to group the species together in precisely the way intended by the late Dr. CORTI, as unfortunately some of his notes are missing and it would entail a great deal of time to make all the necessary investigations. Besides this it is desirable to hurry forward the completion of our work and we therefore ask for forbearance, if some of the details and descriptions are not so perfect, as has been the case hitherto. In order to facilitate comparisons I propose to give at the end of the family a key-table to enable reference to the Main Volume. This has become necessary owing to the alterations in the sequence of the species as compared with Volume 3. By means of this key the species already described there, can be easily and immediately referred to and such a table will be a useful help in making comparisons.

Darmstadt, December 1932.

Prof. M. DRAUDT.

- duosigna*. **A. duosigna** *Hmps.* (Vol. 3, p. 33, pl. 7 d) should certainly be classified here.
- scotacra*. **A. scotacra** *Filipj.* (6 b, co-type ♂) has great resemblance to *corticea* *Hbn.*, with the exception of the antennae, but is really closer to *exclamationis*. It differs from the latter species in the structure of genitalia (*FILIPJEV*): *scotacra* is usually darker, more clearly marked than *exclamationis*, it has a darkening of the costa, which is almost always present, but which is absent in *exclamationis*. The hindwing of the ♂ of *scotacra* is generally much darker than in *exclamationis* and often a distinct band is visible before the outer margin. On underside of hindwing there is usually a heavy transverse band and very distinct discal spot. Amur (Vladivostock), Ussuri territory. Early stages unknown.
- informis*. **A. informis** *Leech* (Vol. 3, p. 33, pl. 7 c). The illustration is not good and a fresh illustration of a ♀ is given here (6 b). *WARREN* classified this species to the *Euxoa*, *HAMPSON* to the *Feltia* (*Agrotis*) and the latter is probably correct. It may only be a race of *exclamationis* and is in any case closely related to same. It is larger, glossy with reddish to violet-brown sheen, transverse lines double, whitish, outer area often dusky brown, so that it appears much more brightly marked than *exclamationis*. Early stages unknown. Amur territory, Japan.
- ripae*. **A. ripae** *Hbn.* (Vol. 3, p. 41). In the first instance it is necessary to correct the illustrations on plate 9 a, b, and c. The illustration on 9 a as *ripae*, should be *desillii*, whilst that on 9 b *weissenborni* ♂, the ♀ = *ripae* *Hbn.*, 9 b and c as *desillii* represent *weissenborni*. The illustrations on 9 b as *desertorum* ♂ and ♀ should be a shade paler. *ripae* varies extraordinarily in colour and markings, nevertheless some races can be definitely separated. — **weissenborni** *Frr.* (= *obotritica* *Schmidt*) appears to be the predominant form in certain districts, for instance in Denmark, southern Sweden, Schleswig Holstein, the east coast of Prussia.
- desertorum*. — **desertorum** *B.* (= *deserticola* *Ev.*) is the race from S. Russia, the Crimea, Egypt, Ili territory. It is the pale form of *ripae* with white ground colour and very distinct markings, which certainly vary. — **alexandrensis** *Bak.* is a form that is close to *desertorum*, with indistinct stigmata, but 2 very pronounced transverse lines. I have a specimen of this type, which quite corresponds to the illustration and which was captured at Dekla in Egypt. — **wagneri** *f. n.* (*Corti* i. l.) I denominate a new silvery grey form from Asia Minor (Ak-shehir) and probably from Syria, which may prove to be a genuine race. — *desillii* *Pier.* (recte: "*desillesi*") is the main form from the South coast of England, Normandy, Morbihan, and Vendée. However similar specimens are taken also in Hamburg, Schleswig Holstein, Sweden, etc. — **albovenosa** *Tschtv.* (= *dukei* *Gr.-Gr.* i. l., *chamyli* *B.-H.* i. l.) (6 f) a very nice race, which is particularly striking by the fine black margin, consisting of lunules, before the fringes of hindwings and by the very distinct discoidal spot of the hindwings, which is especially prominent on the underside. Siberia, the Gobi desert, Sajon, Altai, Transbaicalia, Uliassutai. — Early stages: ova not described. Larvae typical subterranean, that is to say sand larvae, living chiefly on various plants on salty, sandy shores. Pupae yellow-brown with 2 cremaster spines. *ripae* is a coastal insect, as far as the main form and the forms *weissenborni* and *desillii* are concerned. It only rarely occurs at any considerable distance from the sea coast. *ripae* and the 2 races named occur in Belgium, Holland, France, southern England, Denmark, Sweden, Norway, the coast of North Germany and the Black Sea, also in Bulgaria. It flies from June to September.
- nili*. **A. (?) nili** *Baker* (Vol. 3, p. 31, pl. 12 f) is an uncertain species and perhaps only a second generation of *desertorum*. *STAUDINGER* already supposed same to be a variety of *ripae*. *PÜNGELER* on the other hand deemed *nili* to be a form of *trux* *Hbn.* *ANDRES* and *SEITZ* consider *nili* to be a genuine species. According to the latest investigations the specimens bred by the late *AD. ANDRES* and which were mentioned in the "Senckenbergiana" Vol. VI, p. 32, 1924 are not to be identified with *nili*. *CORTI*, to whom I had sent my 3 specimens for examination, wrote to me that in his opinion this was a genuine species, closely resembling *exclamationis*. I therefore describe this insect, as follows:
- adolphi*. **A. adolphi** *sp. n.* (7 a). Generally slightly smaller and more thickset than *exclamationis*, very similar in the arrangement of markings to same, but the markings with the exception of the stigmata are very delicate and faint, the transverse stripes can only be imagined; claviform stigma is absent or minute, only faintly indicated in outline; a fine pale line before the fringes; ground colour silvery grey, yellow-grey to reddish yellow, variable, scales smooth and slippery. Hindwings of ♂ white, of ♀ with dusky shading widely at margin. Larvae subterranean, pupating in October and emerging 3 weeks later. Egypt (Mariout steppes). Described from 1 ♂, 2 ♀♀ in the collection of *DRAUDT*.
- farinosa*. **A. farinosa** *Stgr.* (Vol. 3, p. 41, pl. 9 c). In the illustration in the Main Volume the markings particularly of the claviform, orbicular and reniform stigmata should be rather more distinct; hindwings of ♂ type are whiter, the ♀ has grey hindwings. Ili territory, Issyk-kul.
- eugramma*. **A. eugramma** *Hmps.* (Vol. 3, p. 47, pl. 10 g). *HAMPSON* classifies the species under *Agrotis*, *WARREN* under *Rhyacia*. The latter is certainly incorrect because of the very long spurs on the fore-tibiae. The species is also not connected with *patula* *Wkr.*; the antennae are too different. In the illustration in the Main Volume the inner transverse line is much too dark, it is actually double, but the inner line is pale; the reniform stigma should stand out more prominently and be much darker. The sagittate marks are much paler. One ♀ in the collection of *CORTI* from Ta-tsien-lu, West China.

A. miranda Corti (6 b ♂ type). A fine species reminding one of *corticea* and *tancrei*. Head and thorax grey-white, admixed with brown and with dark collar, abdomen almost whitish. Forewings pale mouse-grey with distinct double transverse lines, in front of the posterior line heavy, partially sagittate shades and marks; claviform stigma clear, short, triangular, dark velvety brown; orbicular stigma small, round, the large reniform stigma widely quadrate, filled with velvety brown; subterminal line obsolete, in front of same dark sagittate marks with white outer edges, a fairly extensive dark shade on costa. Hindwings pale grey-brown with impure whitish fringes. Thibet, Ta-tsien-lu.

A. enitens Corti (6 b). Forewings clay coloured yellow-grey with indistinct markings, basal streak faint; transverse lines fine; the anterior one only in interrupted patches, the posterior one distinct, all 3 stigmata large, pale with dark brown circumscriptions. Subterminal line indistinct, behind same a somewhat paler anal spot and a dark streak before same; marginal area somewhat darker with small brownish marginal lunules. Hindwings almost pure white, veins and marginal line brownish. Askhabad. — **marmorosa** Corti (6 b) is classified here with a question mark. It has a rather different wing contour and is smaller, slightly more bluish grey with clearer markings on forewings and heavy discoidal spot on hindwings, which also have a darker margin. Issyk-kul.

A. incognita Stgr. (= *seditiosa* Püng., *elaborata* Corti i. l.) (Vol. 3, p. 31; compare also what was said in this Volume p. 41 under *hilaris* Frr.). We are giving an illustration of a typical specimen (6 c). It is a genuine species, which has nothing to do with *hilaris*. Dark reddish yellow-brown, all markings distinct, also a central shade is quite pronounced, the transverse lines double. Hindwings barely paler brown than forewings, only slightly paler at base. Distributed in Central Asia, Ferghana (Togus Torow).

A. perplexa A. B.-H. (6 c) reminds one in its markings somewhat of *segetum* Schiff., differs however distinctly by the serrate ciliate antennae, the serrations of which extend to the extremity. Forewings earthy grey, costal margin rather darker, markings not very distinct, only the large reniform stigma rather more prominent through its dark centre. Claviform stigma small with fine dark circumscription, orbicular stigma very indistinct; marginal area rather darker, subterminal line very faint. Hindwings chalky white with faint marginal line. Syr Darja territory.

A. trux Hbn. (Vol. 3, p. 30, pl. 6 e). To be added to the forms enumerated in Main Volume are: — **pseudolunigera** Trti. with dark claviform stigma and paler more distinct orbicular stigma, shape of wings normal. The *lunigera*, which is restricted to England has more quadrate shape of wings with dark marginal band and very distinct transverse lines. — **conclamationis** Trti. is a small form with chalky yellowish grey-brown ground colour without the speckles of the type form and without the brown collar; the ♀ is darker. Described from Cyrenaica (Berka). — **subalba** sp. n. (Corti i. l.) (6 c, d) is a race from Marash (Taurus) having considerably darker stigmata and pure white hindwings in ♂.

A. anarmodia Stgr. (Vol. 3, p. 26). We are giving (6 c) a good illustration of this species that is distributed over Syria and Palestine. It shows many inclinations towards being a dark *ripae* form. The small pale orbicular stigma and the narrowly crescent-shaped dark reniform stigma with its pale circumscription are characteristic. I also have specimens of this species from Egypt.

A. hoggari Roths. (6 d). A remarkable species belonging to the well known *radius* group; it is much larger than same with elongate wing contour, which is nevertheless of wider and more triangular shape, with apex more truncate than the following species. Ground colour a reddish brown; markings very similar to those of *radius*, but the posterior transverse line is missing, instead of same there is a wide somewhat diffuse central shade; claviform and reniform stigmata are wider, the latter with a lighter centre; there are very clear black sagittate marks before the subterminal line. Hindwings white with faintly yellowish tone, with interrupted blackish marginal line. A purely desert insect from Sahara (Bordj Shegga, Hoggar mountains), also from Cyrenaica (Benghasi). Very small specimens from the latter locality with wing expanse of 26—29 mm are named by TURATI — **minima**; they give one the impression of being a separate species.

A. securifera Trti. (6 d) is very close to the preceding species, but has still more elongate wing contour with more oblique margin and more acute apex; colour a brownish ashy grey, very similarly marked to the preceding species. Orbicular and claviform stigmata of the same colour as the ground, with fine dark circumscriptions, both very elongate, the apex of the former touches the reniform stigma; the central shade is missing, the posterior transverse line is incomplete but present. Hindwings transparent pure white. From 1 ♂ from Benghasi (Cyrenaica).

A. puta Hbn. (Vol. 3, p. 28, pl. 12 b). HERRICH-SCHÄFFER was the first to reject the name *puta* as being not applicable. Later other authors such as HAMPSON acted similarly as HÜBNER's original illustration was fantastical and unnatural. Nevertheless Dr. CORTI has classified an insect as *puta* on pl. 6 d, presumably following PÜNGELER's classification and maintaining the priority rights of the name; unfortunately I am unable to trace the origin of the specimen illustrated. It appears to be somewhat larger than usual, with wider wings and whiter hindwings. In any case the differences are not material. Count TURATI separates — **catalaunensis** Mill., mentioned as a synonym in the Main Volume and designates therewith specimens of paler ground colouration, with paler stigmata and bold markings and pure white hindwings; these occur chiefly in Italy, Calabria and have also been observed in Cyrenaica; similarly he deems — **erythroxylea** Tr. to be a

justified denomination of the form with browner ground colour with reddish brown superficial dusting in outer area and sharply pronounced transverse markings; also the hindwings are suffused with grey-brown. It appears to be a local race from Tunis, but also occurs in Cyrenaica. — Still more pronounced than *cata-andreasi*. *launensis*, there is — **andreasi** *Trti.* (*Corti* i. l.) (6 e) with almost pure white ground colour and bold black transverse markings and stigmata. This form was first bred from the ova by K. ANDREAS from Monastir. — *radius*. **radius** *Haw.* As the illustration in the Main Volume leaves something to be desired, we are giving a fresh illustration (6 d). This is certainly the most widely distributed form. — *lignosa* *God.* considered by many to be the usual dark ♀ form, which, however, also occurs in the ♂ sex and denotes here specimens of very dark dull grey-brown ground colour, from which stigmata and transverse lines are only faintly visible. Still darker brown ♂♂ are named — *obscura* *Tutt* and quite black ♀♀ — **nigra**. Other forms described are — **amartia** *Schaw.* from 2 aberrative ♂♂: forewings remarkably pale brown with whitish subterminal. Only the reniform stigma and base of costa are somewhat brownish. From Bosnia-Herzegovina. — **joannisi** *Dufrane* denotes a similar pale aberration: forewings pale greenish yellow, base of costa somewhat browner, transverse lines very faint, stigmata with delicate black-brown circumscriptions, only the reniform stigma with a slight brownish centre; hindwings pure white. Algeria (El Golea). The following further aberrative forms have been described: — **nuda** *Dhl.* yellowish white-grey, entirely devoid of markings and — **subrubra** *Dhl.* with reddish ground colour, which is similar to that of *renitens*, without transverse lines, with pure white hindwings; from central Italy. In the Taurus (Marash) *radius* occurs, as also elsewhere, in 2 generations, in March and again in September, October. Whilst the spring form corresponds to **renitens** *Hbn.*, which is the common form in central and southern Europe, the autumn form has a different appearance, which varies so constantly from all otherwise known *radius* forms, that it should be separated and designated — **syricola** *f. n.* (*Corti* i. l.) (6 e); these specimens are usually larger, the ♂♂ grey without any brown, very clearly marked, the ♀♀ correspond in the majority to the usual *lignosa* form, but they are usually rather less dark on hindwings and with fairly clear markings. Under the name — **saracenica** *Tams* (6 e) there are in the collection of CORTI unusually large specimens with wide wings from northern Arabia; grey with especially well developed transverse shadow markings. We are illustrating one of these specimens. — **rotroui** *Rothsch.* (6 e) described from Oran, are reddish brown specimens with remarkably heavy black marks on costa of which the anterior one merges with the claviform stigma. A more extreme form — **silvestrii** *Trti.* (6 f) is quite dark coppery brown with hindwings suffused with dusky brown. CORTI considered this most decidedly to be a *radius* form, whilst TURATI described same as a genuine species. From a single specimen from Benghazi (Cyrenaica).

A. spinifera *Hbn.* (Vol. 3, p. 27, pl. 5 g).

obsolescens. *A. simplonia* *Hbn.-G.* (Vol. 3, p. 30, pl. 6 e). — **obsolescens** *Strd.* is a form that occurs chiefly in southern european localities. Forewings are suffused with brown with dark speckles. — **umbratilis** *Wgnr.* is dark slate-grey, also the hindwings being much darker, only the fringes remaining yellowish buff. From the Ortler region and Lower Austrian Alps (Dürnstein). — **nigricans** *Hoffm.* from the Trawies Alp. With dark grey-black ground colour with still darker transverse stripes and undulate lines. It is probably the same as the preceding form, in which case this name would have right of priority. — **suffusa** *Hoffm.* are transition specimens, somewhat darker than type form, but distinguishable by their very indistinct markings, so that the wings appear almost unicolourous; Styria. — **calcigena** *Sohn-R.* (6 f) denote the opposite, a much paler, silvery grey, sometimes almost chalky white form from the Abruzzi (Gran Sasso); the wing contour is somewhat narrower, the build more delicate than in *simplonia*, markings reduced and finer; except for the dark reniform stigma and the two transverse lines the forewings are devoid of markings, the dark shading and the marginal spots being absent. Body almost pure white. This fine form occurs at an altitude of 1800–2400 m in July. To the areas of distribution already given, one must add Styria and Carinthia; it is also found in the illyrian-adriatic zone. Its emergence is relatively early for the altitudes at which it occurs, the imagines being found from mid-June; the golden-yellow scales that are loosely superficial on freshly emerged specimens are soon lost. The inert larvae are typically subterranean, grey-brown with pale central discal line, 2 closely approximated subdorsal lines and a somewhat wider undulate lateral line; warts pale brown, blue-grey ventrally; head and scutellum stout, brown with pale subdivision. When touched it rolls up. It feeds on grasses and is full fed at end of August. — **montana** *Kozh.* held to be a species by the author and described from a single ♂, is classified here by CORTI with a query. It is similar to *simplonia*, of darker ground colour with heavy admixture of black and white scales; somewhat smaller than *simplonia*, otherwise similarly marked, with 3 black distinct transverse lines, the stigmata somewhat smaller, but with more distinct black circumscriptions; claviform stigma absent; hindwings dark grey with white fringes. Head and thorax with dense grey hairs. Wing expanse: 32 mm. Pamir.

flavina. **A. flavina** *H.-Schäff.* (Vol. 3, p. 41, pl. 12 c). A. very difficult group of forms. CORTI has partly put down his views in an exchange of letters with F. WAGNER and CARADJA. From these there is no doubt that also — **ochrina** *Stgr.* (Vol. 3, p. 41, pl. 12 b) belongs to the same species and is only a more ochreous brownish form, that occurs in Anatolia among typical specimens. There is no difference in the outer physical structure or in the genitalia. — **brunneopicta** *Corti* i. l. (6 g) is a very large cinnamon-brown, very well marked form

from the northern Lebanon (Beharré), which from its outer structure could not be distinguished from *flavina*. The illustration in the Main Volume gives a rather coarse impression and illustrated poorly marked specimens, especially *ochrina* is more clearly marked; ALBERTI describes an especially boldly marked specimen from Macedonia. Apparently CORTI had denominated just such a specimen as — *mixta* f. n. (pl. 6 g). — **pretiosa** Caradja (6 g) is a nice form with widely darkened margin of forewings with red-brown shading from outer transverse line onwards. CARADJA gives a name in a letter (?) — **pretiosissima** f. n. to an aberration, that is apparently frequent in this local form, from Balcie (Rumania), in which almost the entire forewing is covered by this shade. Only the basal area still retains the yellow-white colour and the orange coloured stigmata stand out prominently from the uniform red-brown forewing. To be added to the area of distribution of the main species are Dalmatia and Macedonia. Nothing is known of the early stages. The species is chiefly found in derelict vineyards.

A. lutescens Ev. (= *dilueida* Ev., *leonina* Stgr.) (Vol. 3, p. 38, pl. 8 e). The illustration of this species, *lutescens*, that is very like the preceding one, is quite good. It can be easily distinguished by the distinct dentate subterminal line. It differs by the more heavily serrate antennae, which are boldly fasciculate. In this respect it agrees with *romanovi* and *hispanica*.

A. romanovi Chr. (Vol. 3, p. 39, pl. 12 c) has the same form of antennae as *lutescens*. This rare species *romanovi* appears to be only known from Armenia. — ab. **jura** Strd. On forewings the posterior transverse line is *jura*, closer to the reniform stigma, it is fainter and almost straight; from Armenia.

A. serraticornis Stgr. (Vol. 3, p. 38, pl. 8 d). Unfortunately I have difficulty in following CORTI's notes in regard to this insect. STAUDINGER describes his species quite recognisably and distinguishes it by the longer pectinations of the antennae, but unfortunately he mentions a specimen from Jerusalem, that "almost" completely agrees with it. WARREN says in the Main Volume in regard to the ♂ antennae that they are quite short and "stiff" (under Section III: antennae with pedicellate fascicles of eilia), whilst CORTI says in his distinguishing description: "scarcely serrate, with wart-like long tufts of hairs". That obviously does not agree! In my collection I have 3 typical pairs, captured by KORB in Cuenca, which all agree exactly with STAUDINGER's original diagnosis, also with HAMPSON's characterisation (he places the species by the way in the *Epipsilia*): antennae bipeetinated with moderately long pectinations, serrate in apical third. The illustration is however fairly good, but the species varies considerably in Spain and quite pale sulphur-yellow specimens devoid of markings occur. CORTI has mentioned in his notes still a "*hispanica* m" with "heavily serrate, upright fasciculate antennae, bands quite different". I could not find a specimen in his collection that would agree with this description and it will be best to continue to name the Spanish species as "*serraticornis*". CORTI further noted a "*flava* m., antennae more heavily serrate than *flavina*, on each a horn and on this a tuft". I do not know what he meant by this, possibly the Jerusalem form, which STAUDINGER had included under his *serraticornis*.

A. psammodes Stgr. (Vol. 3, p. 40, pl. 8 l). Illustration and description suffice, only the grey tone of *psammodes*, the illustration should be fainter. A better illustration is given here (6 e).

A. constanti Mill. (Vol. 3, p. 30, pl. 12 f). The illustration is much too heavy, otherwise however the markings are recognisable. The area of distribution of this species is much more extensive. It has been found in Digne, the Alpes Maritimes, East Pyrenees, Cottic Alps, Valle del Gesso, Col di Tenda, Pigna bel Ventimiglia. A new form has been described from Vellisca near Cuenca: — **clarescens** Fdz. Forewings grey-white, speckled with reddish yellow dots; hindwings white, faintly dusky towards the margin. The size of this form is smaller than that of type. — ab. **pallida** Schaw. are quite pale whitish yellow specimens without any markings. — ab. **rosescens** Schaw. have a faint rosy suffusion on forewings, especially on thorax and the subterminal is a shade darker rose. Described from Albarracin. — The larva is dark brown when young. When full fed it is pale yellowish and polyphagous. It is full grown in May and then enters the earth. However it only pupates middle to end of July in a very frail earthen cocoon. The imagines emerge in September, October in the early morning.

A. eos Obth. (6 i) is very similar to the previous species and is sometimes very difficult to distinguish from same. In fresh specimens the colouration is somewhat of a brick-red hue, in *constanti* the subterminal line is much straighter; hindwings are much paler, almost white. The ♂ genitalia show considerable differences. Algeria (Guelt es Stel, Lambessa).

A. luteomixta Wgnr. (6 i) is classified next to *constanti* and is very similar to *lycophotoides*. Forewings brownish clay coloured with dark grey admixture; basal line indistinct, inner transverse line double, pale inwardly, dark outwardly, basal streak and claviform stigma absent; orbicular stigma small, indistinct filled with blue-grey, reniform stigma more distinct, dark grey; the outer transverse line indistinct, dentate, inwardly darker, outwardly paler, the pale subterminal line indistinct, no sagittate marks, no marginal lunules, marginal line pale orange, fringes brownish. Hindwings impure white, dusky in ♀. From Akshchir (Anatolia).

Subgenus: **Powellinia** *Obth.*Type: *P. lasserrei* *Obth.*

- matritensis.* **P. matritensis** *Vasq.* (Vol. 3, p. 24). This species was not illustrated in the Main Volume and an illustration is now being given (6 f); *matritensis* has meanwhile been frequently found in various localities in Spain.
- messaouda.* **P. messaouda** *Obth.* (Vol. 3, p. 36, pl. 7 i) is often held to be the north African form of *matritensis*, however CORTI seems to have considered same to be a genuine species. It is larger, has a slightly different wing contour, especially the wings are wider, the colour more generously mixed with yellow-red. As the illustration in the Main Volume by no means represents the species, we are giving a good illustration (6 i). Distributed over Algeria and Morocco.
- noctambulatrix.* **P. noctambulatrix** *Chrét.* (6 i) is very close to the preceding species, but the wings are narrower, of bluish grey with admixture of more or less darker shadings, brown in cell and on the fold mixed with ochreous, with widely brownish costal band up to apex, median and submedian nervures white; the anterior transverse line is yellowish, the posterior one is only indicated; subterminal distinct white or yellowish, with brown sagittate marks beyond same; stigmata small, yellowish, an ochreous spot behind the reniform stigma; claviform stigma long, ochreous with black circumscription; fringes checked with brown. Hindwings white, brownish towards margin. The ♀ has much shorter wings, somewhat like *fatidica*, but the transverse lines are distinct. Gafsa (Tunis). — The larva is dorsally whitish or pale grey, ventrally more greenish with white lines, spotted on dorsum. It lives hidden in the sand on *Astragalus gombo*, *Lithospermum*, *Echinops*. Pupation in a frail cocoon, the imagines emerge after 3 weeks in August, September.
- pieretti.* **P. pieretti** *Bugn.* (= *marsdeni* *Bak.*) (Vol. 3, p. 24, pl. 12 e). The illustration in Main Volume leaves a lot to be desired and we are giving a fresh illustration (6 h). The species is much smaller than the preceding one.
- lasserreii.* **P. lasserrei** *Obth.* (= *sabura* *Mab.*) (Vol. 3, p. 24, pl. 5 b). On account of the rather poor illustration in the Main Volume, a better illustration is now given here (6 h). The species is easily distinguishable and occurs everywhere commonly along the north African coast from Morocco to Egypt. Latterly it has been discovered in Spain (I have before me a specimen from Tarragona) and in Syria (Marash) and Palestine. —
- ptolemaida.* **P. ptolemaida** *Trti.* is a darker grey form from Cyrenaica. — **unctus** *Chr.* The reference to the plate should be *unctus.* 12 d instead of 18 a as stated in Index. The illustration is scarcely recognisable!
- orana.* **P. orana** *Luc.* (Vol. 3, p. 118, pl. 28 c). In the Main Volume this was still classified under the Genus *Leucochlaena*, but would probably be more correctly placed here. The illustration was copied from a bad drawing and we are giving a good picture here (6 i). In the pale yellowish grey colouration this small species readily classifies itself in this group, as the markings are very similar. Transverse lines are very faint. Only known from Algeria and Morocco. OBERTHÜR considers that *noctambulatrix* is a dark form of same, but this does not appear to be correct.

Subgenus: **Cladocerotis** *Hmps.*

As was indicated on p. 249 of the Main Volume all the species grouped in this Genus belong without a doubt in closest relationship to the *Powellinia*. Frons very distinct with its prominent three-pointed projecting process.

Type: *C. optabilis* *B.*

- ankarensis.* **C. ankarensis** *Rbl.* (11 a) originally described as an *Episema*, but no doubt belonging here. The densely woolly haired thorax is grey-white, forewings pale brownish grey, in some specimens purer pale grey with indistinct transverse lines, the posterior one distinctly dentate, at end of cell a grey diffuse reniform stigma mark; slightly darker towards the margin, wherein a somewhat paler dentate subterminal line shows up, having a rather darker inward edge; on margin small black dots in the interstices between the veins, fringes pale with 2 dark dividing lines. Hindwings thinly scaled, white with dark lunular mark at upper angle of cell, marginally sparsely bestrewn with brownish and with dark marginal dots. From the neighbourhood of Angora, also from Anatolia, therefore certainly more widely distributed than at present known. Captured in October.
- wichgrafi.* **C. wichgrafi** *Corti* i. l. (11 a). As according to CORTI the genitalia are quite different to the preceding species, this may be a genuine species. It is smaller, more yellow-grey, also the thorax; transverse lines more distinctly dentate, only a narrow shade indicates the reniform stigma, but the space posterior to same to the postmedian line is dark and this also is darker between veins 4 and 6; marginal dots scarcely visible. Fringes darker brown. Hindwings dusky yellowish. According to 1 ♂ from Alishar (Asia Minor). October.
- benigna.* **C. benigna** *Corti* (11 a) is larger than the two preceding species and wings are more elongate. Pale sandy brownish with coarse black speckles, distinct, somewhat dentate transverse lines and stigmata, also claviform stigma blackish and present. Hindwings whitish with very delicate brownish marginal line. Askhabad.

C. tischendorffi *Pglr.* (11 a) resembles the preceding species in its shape, but is larger and distinguishable by the nice brick-reddish colour. Transverse lines distinct, blackish in ♂, dark brown in ♀. Hindwings with discoidal lunule and postmedian line, fringes reddish. Syria (Aleppo). *tischendorffi*.

C. libanotica *Corti* i. l. (11 a) is very similar to *tischendorffi*, but the wings are much narrower, markings much more diffuse and not blackish, but scarcely darker than the pale brick-red ground; fringes quite faintly checked. Hindwings paler without postmedian, only a faint discoidal lunule present; fringes perhaps a shade more reddish. Lebanon (Bcharré). *libanotica*.

C. optabilis *Bsd.* (Vol. 3, p. 249, pl. 50 m). A grey form that is rare in Algiers: — **murina** *Culot* occurring in September, October. On the other hand more frequently — **ochrea** *Culot* with a more ochreous to ochreous reddish ground colour. The type of *optabilis* originates from Montpellier, but also occurs in Algeria. *optabilis*, *murina*, *ochrea*.

Subgenus: **Ogygia** *Hbn.*

Type: *O. signifera* *F.*

O. celsicola *Bell.* (Vol. 3, p. 35, pl. 7 g). The illustration is not bad, but rather too unicoloured brown, a better illustration of the typical southern French form is given here (6 l). It is not easy to distinguish the species and forms of this group from one another. The west asiatic (Persian), specimens are alike with a form that has recently been described from Anatolia as — **gracilis** *Wgnr.* (6 l); these specimens are smaller and more delicately built and have finer and denser markings. The ground colour is a monotonous pale chocolate-brown without the pale patches of *celsicola*. Hindwings are somewhat paler in the disc. — **gueddelanea** *Oberth.* (6 l) very probably belongs here, otherwise possibly also to *forcipula*. It is a larger dark brown form with more distinct postmedian line, which is absent in typical *celsicola*. From the neighbourhood of Lambessa (Djebel-Gueddelane) at an altitude of 1600—2000 m. *celsicola*, *gracilis*, *gueddelanea*.

O. forcipula *Schiff.* (= *denticulosa* *Esp.*) (Vol. 3, p. 35, pl. 7 f). The illustration suffices to recognise the species. The ♂ antennae are fairly crenate with faint wide notches, more shortly fasciculate than *celsicola*, which otherwise the species closely resembles. Besides the forms named in the Main Volume: *bornicensis* and *nigrescens*, there have recently been described: — **lithargyrula** *Trti.* (= *sannitica* *Dhl.*) (6 k) a very pale, bluish grey-white form from Sicily and the Abruzzi with generally clearly marked markings, which are rather too heavy on our illustration. Also hindwings are paler than type. — **helladica** *Rebel* is another very pale but smaller and more clearly marked form than *lithargyrula*, from Greece. — **hyrcana**? *Corti* i. l. ? f. n. *hyrcana*. (6 l) from Askhabad is a dull grey, quite indistinctly marked wide-winged form in which only the sharp stigmata with fine black circumscriptions and the basal streak are somewhat more distinctly prominent. — **amasina** *Trti.* (*Stgr.* i. l.) (6 k) is on an average somewhat smaller, darker brown, almost coffee-brown, with slightly reddish hue; it originates from Amasia. — **robustior** *Corti* i. l. (6 l). A large form which differs from *nigrescens* *Hofm.* by the paler hindwings in the ♂, the reniform stigma, which almost always, especially in the lower part, is filled with chalky white and the usually much darker and more diffuse markings of forewings. It occurs in May-June in northern Syria (Marash). The plate gives (6 k) an illustration of another specimen — **obscurior** *Corti* i. l., about which I can only say that it is larger and darker than *nigrescens*; I am at present unable to state anything in regard to where it occurs. *forcipula*, *lithargyrula*, *helladica*, *hyrcana*, *amasina*, *robustior*, *obscurior*.

O. libanicola *Corti* (7 a) is also closely related to *celsicola*, agreeing in regard to markings with same, the colour, however, being rather more coppery reddish to brown; it is distinguishable by the much whiter hindwings with only narrowly brown outer margin and veins. The type emanates from the northern Lebanon; specimens from Marash (Taurus) are much less brightly marked and reddish; the latter occur in April, May, the Lebanon specimens only in June, so that possibly they are distinct races. *libanicola*.

O. latipennis *Pglr.* (7 b) described as *Euxoa*, belongs according to CORTI with certainty in close proximity to *forcipula*, which it closely resembles. Forewings very wide, earthy grey-brown with veins scarcely darker than ground, no transverse lines and rather indistinct whitish stigmata, having dark centre and circumscriptions, the claviform stigma long and narrow. Hindwings white with dark marginal line, it also looks similar to the form *improvera* of *A. signifera*, but has more heavily ciliate antennae than same. Ili territory; Djarkent. *latipennis*.

O. strenua *Corti* (7 c) is very close to the preceding species, but has more shortly ciliate antennae in the ♂ sex. Forewings glossy brownish grey, base and costal area paler, with short black basal streak to the double anterior transverse line, the stigmata also somewhat more whitish, reniform stigma large, the cell between the two stigmata blackened; the posterior transverse line similarly distinctly double; in marginal area dark sagittate marks, subterminal line with whitish spots. Hindwings whitish grey, veins and margin dusky. From Transcaspiia (Arwas). *strenua*.

O. improba *Stgr.* (Vol. 3, p. 35, pl. 7 h) is another genuine species of this difficult group. The illustration in the Main Volume is quite good. It differs from related species by having no actual crater on frons, which however is roughened. The antennae of ♂ are neither dentate nor crenate, being merely finely fasci-

culate. Forewings darker grey-brown, markings as the previous species. Transverse lines are absent, a black spot behind the reniform stigma. Hindwings brown. From West Turkestan.

- truculenta*. **O. truculenta** Led. (Vol. 3, p. 54, pl. 12 i). The illustration is not really good, though it is difficult to reproduce an exactly good picture. We are giving a better illustration on plate 7 b. It is a somewhat smaller sleeker species; frons rougher than in *improba*, without crater; ♂ antennae not erenate, however finely fasciculate; differs from the preceding species by the white hindwings. Apparently widely distributed in central and eastern Asia, recently having been discovered in the Taurus (Marash).
- toxistigma*. **O. toxistigma** Hmps. (Vol. 3, p. 54, pl. 13 a) is according to CORTI's researches to be distinguished from the preceding very similar species by the faintly erenate, finely fasciculate ♂ antennae, together with the different characteristics mentioned in the Main Volume. Hindwings are similarly white. Also from the Taurus (Marash).
- turbans*. **O. turbans** Stgr. (7 c). This species is anatomically distinguishable by a very pronounced, deep, projecting crater on frons and the heavily dentate, fasciculate antennae. Hindwings are brown. A generally darker and more monotonous species than the subsequent *disturbans*, which HAMPSON and after him also WARREN have mistaken for *turbans*.
- disturbans*. **O. disturbans** Pglr. (= *turbans* Hmps., nec. Stgr.) (Vol. 3, p. 35, pl. 7 f as "*turbans*") (7 b). Closely resembling the preceding species, but paler and more speckled. Anatomically widely different by the rough, protuberant frons, which is without crater and by the scarcely erenate ♂ antennae, which are more longly fasciculate than *celsicola*. Hindwings paler brown.
- imitata*. **O. imitata** Corti i. l. (7 e). In regard to this species, I presume that CORTI wished to describe same as a new species, but I could not find his notes relating to same.
- signifera*. **O. signifera** F. (Vol. 3, p. 35, pl. 7 g). The illustration is more or less recognisable, but the basal streak *rubra*. is too thick. — ab. **rubra** A. B.-H. There are specimens among the south Russian *signifera*, which form a transition to *improcera* Stgr., with heavy brown markings on forewings. Described from Sarepta. — subsp. *tauricola*. n. **tauricola** Corti i. l. has also an especially intensive, bright red-brown colouration of forewings and pale hindwings; the inner and outer transverse lines are especially distinct and dark brown. Taurus (Marash), in July at an altitude of 6—900 m.
- exacta*. **O. exacta** Stgr. (Vol. 3, p. 35, pl. 7 f). The illustration is poor, we are giving a better illustration (7 b).
- glaucescens*. **O. glaucescens** Chr. (Vol. 3, p. 35, pl. 12 g). As the illustration was copied from a quite unrecognisable picture, we are giving a fresh illustration (7 b). The species is much paler and brighter than *exacta* with paler veins.
- O. multicuspis* Ev. (Vol. 3, p. 35, pl. 7 h).
- aequicuspis*. **O. aequicuspis** Stgr. (Vol. 3, p. 36, pl. 12 g). The illustration is unrecognisable. We are now giving a good illustration of this pale species (7 e).
- junctimacula*. **O. junctimacula** Chr. (Vol. 3, p. 40, pl. 12 h) belongs according to CORTI, in this group and seems to be related to *glaucescens*. As the illustration in Main Volume is unrecognisable, we are giving here a good illustration of this fine species (7 e).
- sureyae*. **O. sureyae** Rbl. described from a single ♂, is very close to the variable *signifera*, differing however by the lamellate, very long fasciculate antennae. Frons has a highly protuberant crater. Forewings short and wide, ashy grey, irregularly speckled and with the same markings as *signifera*; reniform stigma filled with grey-white, it is less high and the heavily dentate white and black subterminal line is very distinct. Hindwings pure white and devoid of markings. Wing expanse: 30 mm. Described from Angora.
- caroli*. **O. caroli** Culot (6 k). This and the subsequent closely related species Dr. CORTI enumerates in his lists partly under *Ogygia* and partly under *Powellinia*. As they doubtless are closely related, I am grouping them together here. *caroli* is described from South Russia. It is the most monotonous of the species, dull greyish brown without transverse lines; the black basal streak merges directly in the long claviform stigma; over the cell maculae with their dark centres and black circumscriptions there are small fine black costal marks; a lighter subterminal line can only be suspected, opposite the cell 2 sagittate marks.
- kaaba*. **O. kaaba** Obth. (6 k). The author mentions that this species is closely related to *celsicola* and *forcipula*. Forewings in ♂ grey-violet, darker in ♀, no transverse lines, with paler stigmata in a black-brown cell; basal streak very thick and black; claviform stigma very large; from the cell maculae a dark streak extends towards the margin. Hindwings pale grey, dusky at margin. Algeria (Géryville, Alfou, Djebel Aurès, Lambessa, Gueltes Stel). It occurs in May and June.
- agrotina*. **O. agrotina** Roths. (6 h). Described as an *Actinotia*, it is a pretty species, fairly closely related to the preceding. Forewings grey with faint reddish tone, markings almost identical with those of *kaaba*, but

the basal streak is less pronounced, the cell between the stigmata is not such a rich black-brown, stigmata with darker centres. Hindwings pure white with fine dark marginal line. On the same plate (6 h) there is an illustration, denominated as — **hispanica** Corti i. l. which seems to be a form belonging here and according to the name emanating from Spain. It is brighter coloured than *agrotina*, especially the stigmata stand out more prominently from the darker ground of cell than in the similar *kaaba*. Further particulars are not to be found.

C. mansoura Chrét. (= *synesia* Trti.) (6 g). The ground colour of our illustration is somewhat too brownish, actually the colour should be much purer grey. Transverse lines are absent, stigmata as in the previous species with finely drawn dark surrounds, also the dark longitudinal streak to margin is present although faint; in general all markings are more delicate and indistinct, basal streak very faint, clavicular stigma usually longer than in our illustration. Hindwings pure white, thinly scaled. The species was originally classified under *Simyra*, whilst TURATI created a new Genus for it: *Stenosoma*. Widely distributed in N. Africa, from Algeria to Cyrenaica.

Subgenus: **Dichagyris** Led.

Frons with more or less pronounced crater, which however can frequently be present and absent in one and the same species. When absent frons is rough and arched; thorax scaly. Fore tibiae with fairly long spurs, especially at end. ♂ antennae scarcely or only faintly pectinated, with fascicles of cilia.

Type: *D. melanura* Koll.

I. Group: Underside of wings usually with a more or less dark to black wide outer margin.

D. melanura Koll. (Vol. 3, p. 48, pl. 10 i). Description and illustration given suffice to classify this easily recognisable species. — **grisescens** Stgr. (= *euryloma* Corti i. l.) (7 d as “*euryloma*”) is much more yellowish brown in ground colour and has much heavier markings in median area; also hindwings are duskier. — **stellans** Corti ined. (= *capnoloma* Pglr. i. l.) (7 d) is a similar but somewhat smaller form with purer and paler ground colour than *grisescens* and without the dark brown irroration, with clear black-brown markings in median area, dark margin slightly paler; Aksu, Issyk-kul. — **melanurina** was originally the victim of a misunderstanding, as the real *melanurina*, which STAUDINGER described, was an *Athetis* from Palestine. Despite this, small, delicately built specimens of the genuine *melanura* occur in northern Syria (Taurus, Marash), which outwardly strongly resemble the *Athetis* mentioned; the slightly different wing contour, the outer margin in *Athetis* being more oblique, while the spurred tibiae enable one immediately to recognise the *Agrotidae*. The name *melanurina* can therefore be retained for this form. HAMPSON deleted “*melanurina*”, so that WARREN should be inserted as the author in SEITZ. — **albida** Car. (11 b) is a very beautiful, very white form with only faintly indicated discal markings. From Balce, Rumania, from the so-called Silver Coast.

D. imperator A. B.-H. (7 d). This remarkably beautiful species is described from Algeria (Biskra) and also from Egypt, around Héliouan. The good illustration now given makes any description superfluous. The larva was found at the latter locality on a *Zygophyllum* sp. in April. The moth emerged about a month later.

D. eremicola Stfs. (Vol. 3, p. 34, pl. 12 f). As the illustration in the Main Volume does not suffice to distinguish this species, we are giving a fresh picture (7 d). The species is somewhat greyer than *squalorum*, less peppered with black, markings somewhat more diffuse. The antennae with markedly heavier cilia. From Asia Minor through to West Turkestan and to the Altai. — **nigrolineata** Corti ined. (7 d) is a much darker form, especially the hindwings are duskier.

D. squalorum Ev. (= *vallesiaca* Frr.) (Vol. 3, p. 49, pl. 10 i, k) is probably not a form of *kirghisa* at all. We are again illustrating the two sexes (7 e) as they differ considerably and the illustration in Main Volume was unsatisfactory. Antennae are less heavily ciliate than in *eremicola*. — **crimaea** Kozh. (7 f). According to CORTI's notes, he considered this to be a form belonging here. It is paler, markings clearer and more sharply defined, especially the bold subterminal sagittate marks. Hindwings white, veins marked brownish. Crimea.

D. kirghisa Ev. (Vol. 3, p. 48, pl. 10 i) (11 b) is a genuine species, somewhat smaller than *eremicola*, with distinct markings, the inner line twice acutely angulated, the claviform stigma is conjoined by a stout black bar with the posterior transverse line. Behind this, especially in the upper half, long black cuneiform marks. Hindwings and abdomen yellowish white, the former faintly brownish at margin, in the ♀ quite brown. From S. E. Russia spreading through Asia to the Altai and southwards to Kashmir.

D. vallesiaca Bsd. (Vol. 3, p. 55, pl. 13 b, c). The illustration is much too dark and indistinct. We are giving a fresh picture on pl. 7 e. A rare and local species, found in the plains of the Rhone valley and scarcely occurring above 600 m altitude. It has also been found at Lugano. It occurs between the 15th July and 15th August and can be taken at dusk around the flowers of *Centaurea*, *Scabiosa* and *Silene inflata*. — **inexpectata** Kozh. (7 f) appears to be a form belonging hereto. In CORTI's opinion and contrary to the views of the author, it is the main form, the ♂ has just the same distinct fascicles of cilia on the antennae. Mark-

- ings also agree with those of *vallesiaca*, however the ground colour is a richer brown-grey. Minussinsk. — *venosa* Corti ined. (= *valesiaca* Ev.) (7 f) must be held to be a further form. Somewhat darker than *vallesiaca*, but not so dark as *inexpectata*, duller brownish, the margin of underside a shade darker. Hindwings darker. From Sarepta. PÜNGELER considers this group of species to be a relic of the fauna of the Steppes, which at one period possibly spread far over Europe. — *melanuroides* Kozh. (7 f) is also classified here by CORTI. It is a small faintly marked form, the subterminal euneiform marks are quite absent. — *griseotincta* Wgnr. (7 e) is a form with heavier grey dustings, the space in the cell before the whitish reniform stigma intensively blackened. The hindwing more widely dusky at margin. Central Asia. — *brunneotincta* Corti ined. (7 e) also belongs to this variable group of central Asiatic *Agrotidae*. It is not as grey as the preceding form but more boldly marked and the cell between the stigmata is also more heavily blackened. Hindwings distinctly more brownish than the other forms. It occurs at Togusjuray.
- celebrata*. **D. celebrata** Alph. (Vol. 3, p. 34) (7 f) is certainly not a form of *clara*, but a genuine species. It resembles *clara* somewhat, but is larger, more distinctly marked, colour a deeper grey, with very bold subterminal sagittate marks; with very heavy black markings anterior and posterior to reniform stigma. Hindwings dark brown. From Ahal Tekke. — *tyrannus* A. B.-H. (7 g) is a darker brownish form with unicoloured grey-black hindwings, which are only slightly paler towards the base. On hindwings the markings are heavier black. Karagai-tao.
- squalidior*. **D. squalidior** Ev. (Vol. 3, p. 49) (7 g) is not a form of *kirghisa*, but is also a genuine species. Brownish, coppery and much more clearly marked, especially the marginal area of forewings is darkened. Hindwings white, widely dusky at margin. Taurus. — *rubidior* Corti ined. (7 g) is much more reddish and on an average a larger form from the northern Lebanon. — *persiaca* Kozh. is classified here as a further form by CORTI, whilst the author placed it to *celebrata*. It is a smallish form of dull colouration and more coarsely scaled, the markings being less distinct. N. Persia.
- terminicincta*. **D. terminicincta** Corti ined. (7 h) is very distinct by the very dark subterminal band in which the sagittate marks conjoin forming a wide band. Ground colour is light reddish brown, transverse lines finely drawn and faint, stigmata only indicated as indistinct paler markings, claviform stigma is quite absent. Hindwings brownish, darker at margin. Northern Lebanon. — *maraschi* Corti ined. is a race from the Taurus (Marash) with much more heavily marked transverse lines; in place of the subterminal band there is a much less dentate wide grey band. On underside the marginal bands are much darker and clearer than in the type form. It occurs in July.
- pfeifferi*. **D. pfeifferi** Corti ined. (7 g). A beautiful, quite isolated species with creamy white forewings and very characteristic jet black markings i. e. in the space between the cell maculae, an exceptionally long claviform stigma and a widely blackened margin as in *melanura*. In this however the inner outline of a subterminal line is indicated by 2 larger and a smaller jet black spots. Hindwings whitish with very distinct dark marginal band. Marash, Taurus, captured August to October and named by CORTI in honour of Mr. PFEIFFER, the keen entomologist of Munich who has done so much in investigating the lepidopteral fauna from Marash and surroundings.
- umbrifera*. **D. umbrifera** Alph. (Vol. 3, p. 56, pl. 13 f). As the illustration is unrecognisable, we are giving a fresh figure on pl. 7 g. Generally the species is paler than this rather dark specimen. Although it varies considerably from the other species, it can be readily recognised by the wide median shade and certainly belongs to this group.
- fimbriola*. **D. fimbriola** Esp. (= *maravigna* Dup.) (Vol. 3, p. 56, pl. 13 f). CORTI has ascertained that the typical *nomino*-form only occurs in Hungary. As, of the illustrations in Main Volume, only the ♀ represents the type, we are giving a figure of the ♂ on pl. 7 i. The heavy dark median shade and dark outer margin are characteristic. Swiss specimens should be classified under — *bohatschi* Rbl. described from Armenia, which is very like the ♂ illustrated on pl. 13 f of Main Volume; we are figuring the ♀ on 7 i. In it the dark median shade is absent, at best it is merely indicated on costa and at inner margin; also the outer band is much less intensive. Quite similar specimens are mentioned as occurring at Sierra Nevada and in Macedonia. — *leonhardi* Rbl. (7 i) is a much larger and wider winged form of nice bluish grey ground colour; the median shade is fainter and more delicate, similarly the outer band. Bosnia and Herzegovina. — *iberica* Zerny (7 k) is close to *bohatschi*, but is more buff or grey-brown, the transverse lines are fine or indistinct; the median shade is more or less absent, marginal area widely black-brown and definitely outlined. Only occurring at Albarracin (Aragon), but specimens from the Pyrenees and Digne form transitions. — *laeta* Rbl. (7 k) is a uniformly ochreous brown form, sometimes inclining to sulphurous yellow, median shade and marginal area faintly darker and greyer. The main locality for this form is Anatolia. Probably — *ochraceobrunnea* Strd. is identical with same. This is a specimen from Syria in which the dark brown patches are coloured a paler ochreous brownish (= ab. 1 *Hmps.*). — *raddei* Chr. (7 k) has pale yellow-grey forewings, markings most closely correspond to those of *bohatschi* by the absent median shade, at the same time the form reminds one of the *squalorum* group; *raddei* has rather more heavily ciliate antennae, by which it also approaches to the *zernyi* *squalorum* form. From west asiatic localities. — *zernyi* Corti (7 k) is the smallest of all the races, at the same time the wings are more acutely shaped. Antennae as *raddei*. Outer area very dark, sagittate marks absent; ground

colour otherwise pale yellow-grey, the transverse lines dissolved into dots. Underside almost white with heavily blackened velvety outer bands. Syria (Marash).

D. peperida *Hmps.* (Vol. 3, p. 34, pl. 7 e) and

peperida.

D. xanthiodes *Hmps.* (Vol. 3, p. 33, pl. 7 c) are classified in this group by CORTI.

xanthiodes.

II. Group: Underside of wings without pronounced marginal bands.

D. pudica *Stgr.* (Vol. 3, p. 56, pl. 13 f). The illustration is fairly recognisable, only the transverse markings should be less heavily black, the figure on 7 h is better in this respect. — **griseola** *Stgr.* the greyer *griseola* form, which also has much paler hindwings, is now being illustrated 7 h.

D. despecta *B.-H.* (7 h) is a larger sleeker species with elongate yellow-grey wings having a faint reddish tinge. Markings similar to those of *clara*, but transverse lines are paler and less distinct; irroration heavier than in *clara*; fringes faintly checked at base. Hindwings whitish, veins and margin faintly dusky. Aksu.

D. clara *Stgr.* (Vol. 3, p. 34) (7 h) has, as mentioned in the respective species, no connection with *clara*, *celebrata* and *verecunda*, as was assumed in Main Volume. A nice pale, clearly and boldly marked species.

D. ignara *Stgr.* (Vol. 3, p. 34, pl. 7 e). The illustration in Main Volume shows much too heavy transverse lines, the fresh illustration given here (7 i) is better; *ignara* is a much darker, almost brown species, subterminal sagittate marks distinct. From Mongolia.

D. verecunda *Pglr.* (Vol. 3, p. 34, pl. 7 e) (7 i) is a genuine species, smaller and with narrower wings than *clara*, much paler in its general colouration, pale reddish grey or even purer grey, all transverse stripes are absent except for faint indications on costa; before margin there is a band-like very faint grey shade. Hindwings pure white. Issyk-kul. — **bisignata** *Kozh.* (7 i) is a darker form with bolder markings and especially well defined transverse lines with a faint median shade. Ground colour is rather too dark on our illustration.

D. himalayensis *Trti.* only recently described, yellowish grey-white, stigmata quite absent, transverse lines consisting of blackish conjoined lunules, near the outer a faint median line, which is slightly angulated at end of cell; a black spot basally on costa, at margin a fine dark line, fringes of same colour as ground. Hindwings paler than preceding species, devoid of markings, faintly dusky at margin. Underside without dark marginal band. From Karakorum (Pashwan).

D. singularis *Stgr.* (Vol. 3, p. 34, pl. 12 g) (10 i) certainly belongs here according to the researches of ALPHERAKY; the Genus *Orbifrons* is superfluous. As this rare species, that has hitherto only been sparsely caught in Palestine, was not well illustrated in the Main Volume, we are giving a better illustration here.

Subgenus: **Chersotis** *Bsd.*

Type: *Ch. rectangula* *Schiff.*

Ch. rectangula *Schiff.* (= *exclamans* *Ev.*, *subrectangula* *Stgr.*) (Vol. 3, p. 48, pl. 10 i) (8 b). This species is often difficult to distinguish from *multangula* owing to superficial resemblance but can certainly be recognised by the ♂ antennae. In *rectangula* there are scale-like protuberances outwardly on the antennae, which are absent in *multangula*. *rectangula* is generally somewhat larger, also more monotonous and redder in shade. — **andereggii** *Bsd.* (8 b) is somewhat smaller, the colouration a shade redder, markings clearer and darker. The Alps, Pyrenees, Basses Alpes, Crimea, Kamchatka. — **acutangula** *Stgr.* (8 b) is as large as the type form, with somewhat narrower wings. These are darker grey in colouration and more clearly marked, the 3 stigmata have a more distinct pale outline. This is the central asiatic form.

Ch. multangula *Hbn.* (Vol. 3, p. 48, pl. 10 h) (7 k). The differences from the preceding species are mentioned above. A nice aberration is illustrated (7 l) with darker median area. — **dissoluta** *Stgr.* (= *travunia* *Schaw.*) are lighter specimens with outstanding black markings and sharper pale transverse lines. It occurs everywhere concomitantly, in Switzerland, Italy, Spain and also in Baden, Transylvania etc. Transition forms are frequent. CORTI has given his reasons why he cannot consider *travunia*, which has been described as a constant race from Herzegovina, as distinct. — **subdissoluta** *Wgnr.* (*Corti* i. l.) (8 a) is an interesting race from Inner Anatolia (Akshehir) which occurs in the 2nd half of June and differs by having strikingly white hindwings, much paler than any other known *multangula* race; the underside is glossy blue-black, the arched stripe is much more distinct; it approaches both *neara* and *capnistis*.

Ch. gratissima *Corti* (11 c). As nothing is yet known in regard to the systematic position of this peculiar species, it is meanwhile being placed here on account of the resemblance in the markings. It is

larger and sleeker, antennae almost without pectinations, with dense ciliate bristles; frons rough grained, no crater. Forewings dark grey-brown with similar stigmata and markings as the preceding species. Differing however distinctly by the pure white hindwings in which the veins are scarcely darkened at all. Hitherto only 1 ♂ specimen known from Akshehir.

- capnistis*. **Ch. capnistis** Led. (Vol. 3, p. 48, pl. 10 i). The illustration in Main Volume is unsatisfactory both as regards shape and colour. It is much too large, wide winged and too grey, the markings are not recognisable. We are therefore giving a good illustration (7 l) in which however the outer transverse line might be a shade whiter. The species is of paler colouration than *multangula*, hindwings quite white.
- hahni*. **Ch. hahni** Chr. (Vol. 3, p. 54, pl. 12 i). The description in the Main Volume is not quite correct. The claviform stigma is not joined to outer line by a black streak. It extends as a fine black streak to the inner collateral of the post median line. The illustration is much too pale and yellow, the stigmata should be more prominent, the pale transverse line is too dark and the blue line before the margin should be removed. Merv, Askhabad, Arwas, Shahku; Ordubad.
- calorica*. **Ch. calorica** Corti (8 a). Resembles *hahni* closely in superficial resemblance, but is somewhat smaller. Thorax is covered with long thin hairy scales, whilst in *hahni* it has coarse wide scales. Ground colour of forewings a very glossy mouse-grey with violet sheen, darker towards margin, less brightly marked than *hahni*, with whitish dusted veins; subterminal sagittate marks are distinct, which are absent in *hahni*. Hindwings darker. The fascicles of cilia on antennae of ♂ are longer than in *hahni*. Djarkent, Ili.
- guberlae*. **Ch. guberlae** Corti (8 a). Forewings glossy, velvety mouse-grey with deep black basal streak, the transverse lines partially formed of velvety black spots; orbicular stigma in between two black squares, reniform stigma large, mouse-grey; subterminal line pale, no sagittate marks. Hindwings whitish, dusky at margin and along the veins. The ♀ is a darker blue-grey. Certainly related to *capnistis*, but differing in the genitalia and easily distinguishable by the transverse lines which are not paler. From the southern Urals (Guberla).
- vicina*. **Ch. vicina** Corti (7 l) is similarly marked to the following *neara*, but the transverse lines are less dentate; *vicina* is much smaller and with narrower wings, the hindwings are brownish to brown. The ♂ antennae show indications of pectinations, whilst in *neara* the fascicles of cilia join directly on the shaft. Issyk-kul, Alexander Mountains, Kuku-Nor.
- neara*. **Ch. neara** Pglr. (7 l) is larger than *vicina* and with wider wings. Forewings show a warmer brownish tone, the transverse lines are somewhat more dentate, otherwise the markings are the same. Hindwings are pure white. The genitalia differ considerably. Transcaspia (Merv).
- juvenis*. **Ch. juvenis** Stgr. (= *coelebs* Stgr.) (Vol. 3, p. 48, pl. 12 c). The hindwings are not pure white as in the closely related *capnistis*, but they are darkened towards the margin and along the veins. The illustration in the Main Volume is somewhat too reddish, otherwise it is good. The relatively small reniform stigma and a black sagittate mark along the inner margin before the anterior transverse line and extending almost to the outer line, are characteristic. A somewhat doubtful species, which perhaps should be classified with *capnistis*. Described from Zeitun.
- mediorufa*. **Ch. mediorufa** Corti ined. (11 d). This apparently should be classified here. Thorax blackish crimson, interspersed with whitish hairs. Forewings of coppery red-grey ground colour, densely scaled with black with the exception of the median area, transverse lines double, black, interfilled with somewhat paler reddish, similarly the stigmata, which are submerged, but delicately outlined with blackish. The ground between them is black. From the inner lower lobe of reniform stigma a blackish shadow-like median line extends to the inner margin. The posterior transverse line is boldly dentate. Subterminal line faintly paler, edged inwardly with faint sagittate marks. Hindwings uniformly brownish grey with faint diffuse central shade, a somewhat darker subterminal and darker marginal line. Type one ♂ from Sutchanski-Rudnik in the collection of CORTI.
- tragica*. **Ch. tragica** Corti ined. (11 d) is very close to the preceding species, but much larger and more robustly built, the wings are wider and regularly superdusted with black, so that the reddish ground colour is only visible at rubbed patches. The transverse lines are similarly marked as in *mediorufa*, but they are not double and scarcely have paler edges on the averted sides. The posterior line is very regularly sharply dentate. The stigmata are not paler than the ground, have fine black circumscriptions, the orbicular stigma is quadrangular upstanding on an angle, the outer tip almost touches the reniform stigma. Above the ground of the cell, is interfilled with black in triangular shape. The large claviform stigma has a black outline. Subterminal lines somewhat more distinct, base of fringes paler. Hindwings dark grey-brown and marked as in *mediorufa*. Type one ♂ from Irkutsk in the collection of CORTI.
- moerens*. **Ch. moerens** Stgr. (Vol. 3, p. 48, pl. 12 h). The illustration was a copy and is not natural, as it is much too large and pale. We are now giving a better illustration (11 d).
- secreta*. **Ch. secreta** Corti ined. (11 d) is similar to *moerens*, differing anatomically in the formation of the antennae, there being sleek serrate pectinations with fascicles of cilia on the shaft, which are absent in *moerens*.

The ground colour which has a violet-grey sheen in *moerens*, is here a more reddish black-brown. The orbicular stigma is widely triangular with open base on top and edged with delicate yellowish white scales. The transverse lines have not paler edges. Hindwings with more distinct darker marginal line and large diffuse central spot. Type one ♂ from Thibet in the collection of CORTI.

Ch. melancholica *Led.* (Vol. 3, p. 47, pl. 12 b). We are giving a better illustration (11 d), as the one *melancholica* in the Main Volume is unrecognisable.

Ch. sareptana *H.-S.* (Vol. 3, p. 47, pl. 12 h).

Ch. decussa *Stgr.* (Vol. 3, p. 34, pl. 7 e) should certainly be placed here. According to CORTI's investigations of the type, it is not a genuine *Euxoa*. The illustration is fairly good. The species resembles *multangula*, to which it is also closely related, but it also has a resemblance to various asiatic specimens of *polygona*. Alexander Mountains, Issyk-kul, Thibet, Minussinsk.

Ch. versuta *Pglr.* (8 a). Is closely related to *decussa*, but has narrower wings and is not so stumpy built. The reniform stigma is smaller, claviform stigma scarcely indicated. Anterior to the inner transverse line there is a black dot in the cell. The space between the stigmata is filled with deeper black. Hindwings heavily dusky as in *decussa*. The ♂ antennae have only very short cilia, in *decussa* they are 3 times as long and less dense. The fore tibiae have much shorter spurs. Kuku-Nor.

Ch. maraschi *Corti* ined. (8 a) is probably closest to *guberlae* and has similar glossy forewings, which however are a much paler bluish grey. The transverse lines are more continuous, the black marking between the stigmata varies considerably, generally it is only faint and especially towards the reniform stigma only barely indicated. The transverse lines commence at the costa in black dots. Hindwings duller than in *guberlae*. From the Taurus (Marash), captured in October-November.

Ch. sordescens *Stgr.* (Vol. 3, p. 54, pl. 13 b). The rather poor illustration is replaced here by a better one (8 d). According to CORTI this insignificant species and the following ones should all be classified here. It looks somewhat like *maraschi*, but is not so glossy. Transverse lines much fainter, the posterior one almost extinct. Forewings duskier towards margin. The cell between the stigmata filled with black. Hindwings much darker. W. Turkestan.

Ch. glabripennis *Corti* (8 a) reminds one somewhat of *multifida*. Forewings similarly mouse-grey with black basal streak. The inner line double, pale grey. Claviform stigma a black triangle. Orbicular stigma longish round and open on top diffusing into the paler costal streak. Cell below same filled with black. Reniform stigma rather indistinct. Costa with black spots. Below the reniform stigma a black longitudinal streak. The outer transverse line merely indicated, double. Marginal area mouse-grey with subterminal line indicated. Hindwings impure white, veins and margin darker. S. Urals; Transcaspia.

Ch. deplanata *Ev.* (Vol. 3, p. 48, pl. 10 h) (8 b) is fairly close to the *multangula* group. The illustration in Main Volume is much too black-grey and we are giving a better illustration of this much more brownish species.

Ch. kononis *Mats.* does not closely resemble any other species, but is classified next to *deplanata*. Forewings dark brown, the undulate subbasal line is indistinct, double, somewhat interfilled with white in centre. The anterior transverse line is double, the outer part more heavily filled with white. The large oval orbicular stigma is pale grey, the large reniform stigma still paler, with black spots on each side. The double postmedian line is similarly interfilled with white. Marginal area widely pale grey, therein a white speck on costa. Hindwings pale grey with grey submarginal band. Wing expanse 34—36 mm. N. Saghalin (Alexandrovsk).

Ch. agalma *Pglr.* (Vol. 3, p. 48, pl. 10 h) (8 b). In the illustration in Main Volume colours contrast far too much. It is a nice species with characteristic markings and we are giving a better illustration here.

Ch. semna *Pglr.* (Vol. 3, p. 48). Of this beautiful species we are able to give an excellent illustration (8 c). Besides the locality Askhabad, the species has now also been taken in the Taurus (Marash).

Ch. albifurca *Ersch.* (= *reticulata* *Kozh.*) (Vol. 3, p. 48) (8 c). As no illustration was given in the Main Volume, we are giving one here. It is a relatively common species of very wide distribution.

Ch. obnubila *Corti* was denominated from a ♀ in the PÜNGELER collection and is classified here under reserve. Forewings glossy mouse-grey with black basal streak and a black outwardly concave arc above same. Black inner transverse line. Orbicular stigma elliptical and pointed, between same and the reniform stigma, the cell is black. Outer transverse line extinct. Subterminal line indicated and there are traces of sagittate marks in front of same. Hindwings unicoloured grey-white. Wing expanse 30 mm. Transcaspia (Arwas).

Ch. niviparsa *Btlr.* (Vol. 3, p. 46, pl. 10 e). Also this smaller species is classified near to *multangula*. The illustration in Main Volume is more or less recognisable, only the markings are shown as too diffuse.

invenusta. **Ch. invenusta** Kozh. (8 c) is possibly only a geographic race of *agalma*. The colouration is more monotonous, greyer without any red-brown tone. The outer transverse line is close to the reniform stigma in contrast to *agalma*. Subterminal line less distinct. Underside is much darker, only paler towards the base. As the name *invenusta* has been utilised already by GROTE to refer to an american *Agrotis* (*Lycophotia*), I propose to substitute the name "**kozhantschikovi**". From Minussinsk.

honestla. **Ch. honesta** Stgr. (Vol. 3, p. 33, pl. 12 g). As the illustration in Main Volume is much too dark and unclear, we are giving a better illustration here (8 c).

pulchrella. **Ch. pulchrella** A. B.-H. (8 c) is very close to preceding species, but it is distinctly smaller, lighter with brighter markings. They stand out more clearly from the grey-white ground, as do also the veins around the central cell and the reniform stigma. The whitish colour should also be rather more pronounced on our illustration. Hindwings are darker. Sajan territory.

bonza. **Ch. bonza** Pglr. (Vol. 3, p. 47, pl. 12 c) (8 d). This species which is compared to *semna* still belongs in this group and is in appearance very like some of the related forms. The species is smaller and with narrower wings than are shown on the rather poor illustration in Main Volume, the colouration besides is duller and more monotonous. Possibly it should be classified to *Opigena* next to *polygona*.

Subgenus: **Hermonassa** Wkr.

H. cecilia Btlr. (Vol. 3, p. 57, pl. 13 h).

arenosa. **H. arenosa** Btlr. (Vol. 3, p. 57) (8 d). This species was not illustrated in Main Volume, so we are now giving a picture.

ferruginea. *H. consignata* Wkr. (Vol. 3, p. 57, pl. 13 h). — ab. **ferruginea** Strd. has more rusty red forewings without the grey-blue irroration of type. In the cell before and between the stigmata there is deeper black dusting. — ab. **pallidipicta** Strd. is a paler form. Head, thorax and basal half of forewings are pale olive greenish, hindwings whitish. Abdomen of same shade with reddish anal tuft. Thibet, Kashmir.

kaschmiricola. *H. incisa* Moore (Vol. 11, p. 61, pl. 8 b). Of this Indian species described from Sikkim, STRAND has described a form — **kaschmiricola** which is much darker than the typical yellowish form. Thorax and forewings inclined to dark brownish by the interspersation of black scales. Basal and costal areas olive greenish to beyond the centre. Hindwings brownish. From Kashmir at the boundary of the palaearctic territory.

H. lunata Moore (Vol. 3, p. 57, pl. 13 h). According to CORTI's opinion this should not be classified here, but to *marcida* Chr. (Vol. 3, p. 34, pl. 7 e).

chalybeata. **H. chalybeata** Moore (Vol. 3, p. 57). Of this small species of which no illustration was given in Main Volume, we are now giving a good illustration (8 d).

clava. **H. clava** Leech (Vol. 3, p. 57, pl. 15 k). The illustration of this chinese species in Main Volume was not good and we are now giving another (8 d). The STÖTZNER expedition discovered this species also at the Omei-shan (Szechuen).

pallidula. **H. pallidula** Leech (Vol. 3, p. 57, pl. 15 k). The same applies to this species and we are giving a better illustration (8 d). Both species are probably very closely related. This species also occurs in Szechuen.

finitima. **H. finitima** Warr. (Vol. 3, p. 57). It is not improbable in my opinion that this species is identical with *consignata-pallidipicta* Strd. Description and locality of origin appear to be the same. In such a case WARREN's denomination would have priority.

undosa. **H. undosa** Leech (Vol. 3, p. 63, pl. 15 a). This species was placed with the *Triphaena* Hbn. in the Main Volume. According to CORTI its position should be with the *Hermonassa*. It is the largest species of this group and we are giving another illustration (11 c).

Subgenus: **Nyssocnemis** Led.

obesa. **N. obesa** Ev. (Vol. 3, p. 56, pl. 13 g). This remarkable species, which does not give one the impression of being an *Agrotis*, is being again illustrated here (8 e), as the picture in the Main Volume was not satisfactory.

Subgenus: **Opigena** Bsd.

polygona. **O. polygona** F. (Vol. 3, p. 57, pl. 13 g). The illustration is fairly good. — **rutilans** Sohn-Rethel (11 b) is a much more brightly marked form from the Abruzzi. The ground colour is a warmer ochreous, the dark markings and shadings are lightly and faintly suffused with red, almost of the shade of *Rh. brunnea*. From

the Majella, in August. — **obscurata** (M. BARTEL i. l.) *Sohn-Rethel* in contrast thereto is deep blackish with *obscurata*, crimson-brown suffusion; from the Alexander Mountains and Kuku-Nor.

21. Genus: **Rhyacia** Hbn.

As no notes are available for the subdivision of further Genera, which after all only have the value of subgenera, I must group the remaining species under this Genus, as it would be impossible to re-classify same without immense, painstaking researches, which are not feasible at this juncture.

Rh. subrosea Steph. (Vol. 3, p. 36, pl. 7 i). On plate 8 i we are giving an illustration of a british ♂ to *subrosea*. the ♀ figured in Main Volume. The species has recently been subject to careful revision by WARNECKE. According to this, the separation of the Island form with reddish tinge (*subrosea*) from the mainland bluish grey form (*subcaerulea*) (8 i) can no longer be maintained. The reddish form also occurs on the mainland. Transitions are denominated — **kieferi** Rbl. a form that was first discovered at Admont (Styria), but which *kieferi*. also occurs elsewhere in Europe. To subdivide the species further according to shades of colouration seems idle, as otherwise there would be no end to such a procedure. The following aberrations are described: — ab. **latefasciata** Huene with darker median area between the transverse stripes. — ab. **decipiens** Warn. (8 i) a melanic form with monotonous dark brown forewings so that stigmata and bands are only faintly discernible. *latefasciata*. *decipiens*. Also hindwings are very dusky. From the neighbourhood of Hamburg. To the localities already enumerated besides Siberia (Minussinsk) we have to add Denmark, Sweden and Norway; since 1908 in Pommerania, 1923 in Lower Elbe territory, already since 1888 at Hanover; besides Bohemia (around the Hirschberg in B.), Styria (Upper Enns Valley) and France (Nantes). The latter is however open to doubt.

Rh. velata Stgr. (Vol. 3, p. 36, pl. 7 k) almost looks like a form of *decipiens* of the previous species. *velata*. The illustration in Main Volume was not as good as it should be and we are giving a better illustration here (11 c).

Rh. spania Pglr. (Vol. 3, p. 43). CORTI classifies this next to *velata*, as same are very alike. Wing *spania*. contour is narrower, colouration still darker, grey-black without the violet-reddish hue of the preceding species. Black basal streak, much less distinct transverse lines, wider reniform stigma and less reddish under-side. The type is illustrated in the "Iris" Plate 6, Fig. 9.

Rh. plana Leech (Vol. 3, p. 38, pl. 8 c).

Rh. subcorticea Stgr. (Vol. 3, p. 38, pl. 8 e). As the illustration in Main Volume does not give the *subcorticea*. right impression of this insignificant species, we are figuring it again here (8 i).

Rh. cissigma Mén. (Vol. 3, p. 38, pl. 8 d). Also this species is being illustrated afresh. The ground *cissigma*. colour is often more reddish than is shown in our illustration and reminds one thereby of *brunnea*.

Rh. clarivena Pglr. (Vol. 3, p. 39, pl. 12 d). As the old illustration was a bad copy we are giving a *clarivena*. good picture here (8 g).

Rh. musiva Hbn. (Vol. 3, p. 39, pl. 8 f). The illustration is good.

Rh. ellapsa Corti. This closely resembles *musiva* and *clarivena* but differs in the first instance by the *ellapsa*. high dorsal brush of hairs on thorax, the scales and hairs of which are strikingly white. Ground colour of forewings inclined to brick-red. Instead of the oval claviform stigma there is a velvety black triangle. In place of the 2-arched inner transverse line there is an oblique stripe extending towards the base. It is white on top and reddish below. The outer transverse line is simple and faintly dentate. Hindwings brown with distinct discal lunule. From Szechuen.

Rh. triangularis Moore (Vol. 3, p. 43, pl. 9 f). Illustration and description of this wide-winged species *triangularis*. should suffice. HAMPSON classified *triangularis* with *stentzi*, but this does not appear justifiable.

Rh. exoleta Leech (Vol. 3, p. 39, pl. 8 e). — **infuscata** Draes. (11 c) denotes much darker fuscous speci- *infuscata*. mens from Sungpanting (Szechuen).

Rh. costaestriga Stgr. (Vol. 3, p. 44, pl. 9 h). As the illustration is not good, we are improving and *costaestriga*. repeating it here (8 g).

Rh. albipennis Btlr. (Vol. 3, p. 45, pl. 10 b). We are giving a better illustration here (8 g) as in the *albipennis*. illustration in Main Volume the dark median band was extended right to the inner margin, which was incorrect.

Rh. glareosa Esp. (Vol. 3, p. 39, pl. 8 f). The illustration is too much mottled with grey, otherwise *glareosa*. it is good; typical specimens are a nice clear bluish grey or earthen grey. This species seems only to occur separately or rarely. — **edda** Stgr. A good illustration of this form is given (8 h), also of the nice form — *edda*. **rosea** Tutt (8 h). In regard to the form *limbata* mentioned in the Main Volume, the ground is tinted with bluish *rosea*. grey and not bluish green.

- margaritacea*. **Rh. margaritacea** Vill. (Vol. 3, p. 54, pl. 13 b). We are giving a better illustration (8 h). Specimens from the Abruzzi are generally large, much paler, of nice whitish blue-grey colouration with snow white hindwings in the ♂. This is certainly a good race, which should be separated as — **abruzzensis** f. n. —
- dequadrata*. **dequadrata** Dhl. denotes specimens in which the quadrate mark between the stigmata is absent, whilst the remaining markings are distinct, in fact often they are especially bold. — In ab. **pura** Dhl., besides the quadrate mark between the stigmata, also the spots on costa, the transverse bands and rows of dots are absent, the specimens are therefore devoid of markings. Majella, Gran Sasso. — **signata** Wgnr. is the local race from Anatolia (Akshehir); it is blue-grey with much darker outer area, with distinct transverse lines and dark thorax.
- cyrnaea*. **Rh. cyrnaea** Spul. (falleri Pglr. i. l.) (8 h). Hitherto this has been held to be a local race of *margaritacea*, but an examination of the genitalia has shown certain differences, so that it must now be deemed a genuine species. It is darker, reddish brown and more richly marked with distinct transverse lines. Hindwings are darker, faintly clouded in ♂, more heavily so in ♀. Corsica. — **montedoronis** Schaw. denotes darker sandy grey specimens. — **vixsignata** Schaw. represents specimens with scarcely any markings and only faint indications of the two stigmata and spots on costa.
- gaurax*. **Rh. gaurax** Pglr. (Vol. 3, p. 54, pl. 12 i). We are replacing (8 f) the poor illustration in Main Volume.
- tamerlana*. **Rh. tamerlana** Hmps. (Vol. 3, p. 53, pl. 11 k). Here also we are giving a better illustration (8 g) by which the species can be distinguished.
- capnoptera*. **Rh. trigonica** Alph. (Vol. 3, p. 47, pl. 10 g). The illustration is fairly good. Of — **capnoptera** Pglr. we are giving a good illustration (8 f).
- picala*. **Rh. picala** A. B.-H. (= nona Obth.) (8 f as "nona"). A fine species, that is close to *trigonica*. Forewings soft pale grey with brownish sheen, delicate black barely dentate transverse lines, somewhat bolder subterminal line and the cell between the stigmata interfilled with black. Hindwings white, rather duskier at margin. From Algeria (Batna, Lambessa, Aflou).
- caerulea*. **Rh. chaldaica** Bsd. (Vol. 3, p. 53, pl. 11 k). The illustration is good but the contour is less so: we are giving another illustration of the form *spodia* Pglr. (10 g). — **caerulea** Wgnr. (8 g) is a pretty blue-grey race with velvety black cell spots and quite white hindwings, which occurs in September in Anatolia (Akshehir).
- pallescens*. **Rh. insignata** Led. (Vol. 3, p. 54, pl. 13 b). The illustration in Main Volume is somewhat too dark, the markings are however correct. — **pallescens** (8 g) is now being illustrated.
- depuncta*. **Rh. depuncta** L. (Vol. 3, p. 44, pl. 9 i). DANNEHL separates the more northerly german form with the rather paler grey ground colour, from the race that is typical from the South, especially the S. Tyrol. The latter has a more reddish brown, warmer tone. It seems to be more brightly marked because the basal area is dusted over with blue-grey and this contrasts with the darker brown median area. The race, which is also of slightly robuster build, he names — **meridionalis** Dhl. It occurs in especially dark specimens in the Hautes Pyrénées, whilst the Abruzzi specimens tally with the grey type. — **pontica** Stgr. we are illustrating (8 f), it is taken at Digne and also in Spain (Albarracin, Madrid). However I have also received from there the quite pale grey, almost ashy bluish or greenish form. We are giving an illustration of — **consenescons** Stgr. (8 f), which is a transition form of rather brownish colouration. From Spain (Behar) captured by FERNANDEZ. — *obscura*. **obscura** Clayhills is a very dusky, blackish suffused form, described from Finland.
- kollari*. **Rh. kollari** Led. (Vol. 3, p. 44, pl. 9 i). The illustration is too heavy and colouration too uniform. We are therefore giving a better illustration (8 e). — **plumbata** Btlr. This nice form, described from Japan was also obtained by the STÖTZNER expedition in Szechuan. We are also figuring this nice large form here (8 e).
- flammatra*. **Rh. flammatra** Schiff. (Vol. 3, p. 43, pl. 9 g). CORTI evidently proposed to place this form immediately here. All central asiatic specimens are smaller on an average, of paler grey-brown colour and the markings with the exception of the black basal streak are more or less completely obsolete. This form is named — **centralasiae** Wgnr. Dr. CORTI illustrated on pl. 8 c a very similar specimen, which is named — **obsoleta**. I know nothing about its origin at the moment. On the other hand — **herculea** Corti i. l. (?) (8 e) is an exceptionally large, boldly marked form with deep black interfilled cell between the stigmata. Presumably it emanates from East Asia?
- stötzneri*. **Rh. stötzneri** Corti (8 h). A somewhat smaller dark species with narrower wings. Dark brown, costal streak paler; distinguished by the very dark colouration of the cell before and behind the orbicular stigma. The double transverse lines are interfilled with paler colour and also the subterminal line is paler. Claviform stigma has a black surround. Forewings pale grey-brown, still lighter towards the base. Ta-tsien-lu (Szechuan).

Rh. collina Bsd. (Vol. 3, p. 47, pl. 12 b). The illustration in Main Volume is not good, being much *collina*. too broad in the wing and too large. A better illustration is now given here (8 h). — The following aberrations are described: — ab. **roseggeri** Schaw. has violet-brown ground colour instead of greyish red. From Krieg- *roseggeri*. lach. — ab. **loebeli** Rebel has paler brownish grey ground colour, which is not darker towards margin, the veins *loebeli*. therefore appearing more distinct; besides the cell is not black. Also from Krieglach. — ab. **nigromarginata** *nigro-* *marginata*. Lange (Hoffm. i. l.) has the entire marginal area from posterior transverse line and including the fringes, a deep black-brown, so that the subterminal line is invisible. Mountains of Saxony. — **kenteana** Stgr. is a *kenteana*. paler form with fainter markings, which we are illustrating (8 i). Ground colour is pale brownish grey, the black basal streak is absent; both transverse lines are less distinct. Besides, this form is somewhat smaller. From Kentei.

Rh. jordani Trti. (12 k). The position of this curious moth is indeed rather doubtful. It has been com- *jordani*. pared to *obscura*, to *hyperborea* and then again to *molothina*, *porphyrea* and *agathina* and now finally CORTI seems to consider same as being nearest to *collina*, owing to similarities in the genitalia and we are therefore classifying same here. Forewings monotonous brown to violet-black with intermixture of grey. The double transverse lines are more or less distinct; the pale orbicular stigma is small, bi-pupillate, reniform stigma with black centre and pale inner edge; black sagittate marks before the subterminal line. Hindwings dusky grey with paler fringes. Antennae yellowish, bipectinate — **chalybaea** Trti. is a greyer, more boldly marked form *chalybaea*. with colouration like that of *senna*. From Sardinia and Corsica.

Rh. devota Chr. (Vol. 3, p. 55, pl. 15 i). With this species a very difficult group of closely related species *devota*. commences. The illustration in Main Volume being unsatisfactory we are again illustrating this species (8 k), that is so very like *renigera*. The transverse lines are much less pronounced than is generally the case in *renigera*. Compare what is said under *renigera* in regard to this species. From same it will be observed that *devota* is held by some to be a form of *forficula*.

Rh. argentea Kozh. is placed in the *renigera* group and is most like *devota*. Ground colour is a glossy *argentea*. pale grey with faintly darker grey or blackish marking; the stigmata are completely absent, transverse lines are only faintly visible and slightly undulate, being often only discernible in their commencements on costa. On the other hand the central shade is often rather heavy. Hindwings paler at base, without discal spot. Wing expanse: 36 mm. Semiretshje (Pishpek).

Rh. renigera Hbn. (Vol. 3, p. 55, pl. 13 e). CORTI has published several notes regarding this species. *renigera*. According to his views, STAUDINGER's creation of the forms *intermedia* and *turana* was not justified, as there are too many transitions in this exceedingly variable species. Even the common european form varies to an extraordinary degree. Specimens occur from grey-white to orange-yellow and grey-black with yellow, black and orange coloured admixtures. Similarly the hindwings vary from pale grey to orange-brown and again to black in almost all possible graduations of shades. The same applies to the distinctness of the markings, which are occasionally very definitely clear and then again scarcely discernible. In asiatic specimens there is an inclination towards reddish colouration (*erubescens* Stgr.) (8 k). BANG-HAAS has denominated an especially extreme *erubescens* as: — **saturata** i. l. — **funestissima** Bub. denotes a good form from Sierra Nevada, which is characterised by *saturata*. very dark grey-black forewings. We are illustrating a specimen of this denomination from the Pyrenees (8 l) *funestissi-* *ma*. which CORTI had classified here. — **nigrescens** Kitt. is a transition to same. CORTI would have preferred to *nigrescens*. include this form under *funestissima*. It was described from Le Vernet in the East Pyrenees. — **argentina** *argentina*. Car. (= *argentea* Car.) (8 k as "*argentea*") is a very fine, thoroughly justified subspecies of pale silvery grey colour from the southern Dobrudja (Balceie) on the Silver Coast. — **caerulescens** Wgnr. (8 l) is a remarkable *caerulescens*. grey-blue race from Sultan-Dagh in Asia Minor and this is especially noteworthy, as in the neighbouring steppes of Akshehir exclusively the form *erubescens* occurs. CORTI has therefore expressed the opinion that this may possibly be a genuine species; *caerulescens* has diffuse markings and a rosy tinge in marginal area. Underside with strikingly wide, dark and sharply defined marginal area and wide white margin, which is characteristic of the *forficula* and *hadjina* forms. — **contermina** Corti (8 l) has almost unicoloured very pale sandy coloured *contermina*. fore and hindwings which are more delicately suffused with rose in the ♀ than in the ♂, markings more or less distinctly marked with deep brown and ochreous. From Aleppo. — **furiosa** A. B.-H. (8 l) is a large form, *furiosa*. dusted with violet-reddish, boldly marked with deep black costal spots and grey-black hindwings; from Garm (Peter the Great Mountains). As the illustrations in the Main Volume of the type, as well as of the form *funebria* are not good, we are giving fresh illustrations of both again here (8 k and l).

KOZHANTSCHIKOV has made a special study of the group of forms around *renigera* and he would group them quite differently. According to his researches the species belonging here can be divided into 2 groups according to the genitalia. The first type would include all the species with equally wide valves which are slightly chitinous and having narrow pointed harpes; the superficial characteristics of this group are obtuse-angled wings with delicate markings. The following would thus be classified here: *forficula* Ev. (= *dumosa* Donz., *caucasica* Stgr.) with ab. *hadjina* Stgr., ab. *zeituna* Stgr., ab. *turana* Stgr., ab. *intermedia* Stgr., ab. *erubescens* Stgr., ab. *devota* Chr., ? ab. *furiosa* B.-H., ? ab. *nigrescens* Kitt., ? ab. *funestissima* Bub. The 2nd type would embrace the species with firm, heavily chitinous valves having a sharply curved upper edge and wide

harpes, which curve downwards: the outer characteristics of this group are more acute-angled wings with coarser, heavier markings. This would include only *renigera* Hbn. with subsp. *funebria* Stgr.

forficula. **Rh. forficula** Ev. (Vol. 3, p. 35). This species does not come under *Euxoa*, but is closest to *renigera*. We are giving an illustration (9 a) of this somewhat smaller species. It is pale with dense irrorations, indistinct markings and can be differentiated by a wide, dark, sharply defined outer margin on underside, which *renigera* has not got.

hadjina. **Rh. hadjina** Stgr. (Vol. 3, p. 55, pl. 15 i). This species should also be placed here. We are giving a better illustration (9 a), the illustration in Main Volume being a poor copy. We are also giving a good illustration of the pale form: — **zeituna** Stgr. (9 a). In regard to this "species", compare what was said under *renigera*.

latens. **Rh. latens** Hbn. (Vol. 3, p. 52, pl. 11 f). The illustration was not good, we are giving a fresh picture *illuminata*. (9 a). The form from Italy is not identical: — **illuminata** Trti. (= *apennina* Sohn-Rethel) from the Majella and Monti Sibillini, is a much paler, whitish grey form which is generally more distinctly marked and thus so similar to certain specimens of *griseus* *albescens*, that same can only be differentiated by the somewhat longer pectinated ♂ antennae and rather more arched frons. Generally however the ground colour is slightly *obscura*. more luteous and the black irrorations coarser. — ab. **obscura** Schwing. is a much darker grey-black form from Carinthia.

pallidifrons. **Rh. pallidifrons** Hmps. (Vol. 3, p. 28, pl. 6 b). According to CORTI, this should be classified next to *latens* and according to its appearance it seems to have natural affinity to same.

electra. **Rh. electra** Stgr. (Vol. 3, p. 55, pl. 13 d) would also come into this group, having much similarity to *latens*, as well as *griseus*.

griseus. **Rh. griseus** F. (Vol. 3, p. 29, pl. 6 g). The illustration in Main Volume is good, that of the ♀ represents *fasciata*. an aberrative form with dark central band, which VORBRÖDT has named — **fasciata**; it was described from Pontresina, but is found occasionally over the whole area of distribution. — **defasciata** Wendtland denotes specimens without the dark central band; described from the Rhineland, but occurring everywhere. Occasionally melanic specimens occur, which besides the black shading, have a violet hue. Such a specimen ex the collection of CORTI is now illustrated (9 a). VORBRÖDT mentions a similar specimen from Davos, which was in the first *albescens*. instance held to be a melanic aberration of *simulatrix*. — **albescens** Sohn-Rethel (9 b) is a form with whitish, often silvery whitish ground colour, that occasionally has a yellowish tinge, almost devoid of irrorations, the dark markings being delicate but clear, the dark shadings reduced; also the hindwings are purer white with contrasting dark marginal band. The form is fairly common in the Abruzzi territory in Italy, but is also mentioned as occurring in Albania, Bosnia, etc., although there it seems to have a more yellowish grey tone. *nivescens*. The Abruzzi specimens are very like — **nivescens** Rbl. described from South Russia (Govt. Woronesh). Body and wings pure white, the latter with blackish grey markings, only a dark wedge-shaped mark of the middle shade is retained, between the stigmata. These are white with dark surrounds. Hindwings white faintly *thianschanica*. brownish grey at apex and margin. — **thianschanica** Stgr. (9 b) is now illustrated from a typical specimen. — *griseus* should not be classified under *Euxoa*, where HAMPSON had placed it, but it should be grouped quite close to *latens*.

cognita. **Rh. cognita** Stgr. (Vol. 3, p. 28, pl. 6 b). According to CORTI this is also neither a *Euxoa* nor a *Feltia* and is best classified here.

caradrinoides. **Rh. caradrinoides** Stgr. (Vol. 3, p. 55, pl. 13 e). The old illustration was a copy and not very recognisable. We are giving a fresh picture here (9 b).

fugax. **Rh. fugax** Tr. (Vol. 3, p. 55, pl. 13 c). This is the oldest representative of this difficult group of very similar species. The illustration in Main Volume was not good and we are giving a fresh one (9 c).

ala. **Rh. ala** Stgr. (Vol. 3, p. 55). We are illustrating this species (9 b). It is very like *fugax*, but differs in the first instance by the whiter hindwings which have no heavy discal lunule. HAMPSON even considered same to be a form of *fugax*, but it is certainly a genuine species, that is apparently found throughout western Asia.

photophila. **Rh. photophila** Gn. (Vol. 3, p. 55, pl. 13 c). The old illustration was unsatisfactory and we are giving a fresh one (9 d). The species is distributed over North Africa from Morocco to Algeria and in places it is common. It sometimes occurs in such numbers as to be a regular nuisance round the lamps. From further east, Egypt and Syria it has not yet been announced. — *ignipeta* Obth. seems to have been denominated from a specimen, to which incorrect (pectinated) antennae have been artificially applied. HAMPSON considered *photophila* and *sollers* to be synonymous, which is possibly correct; the latter species seems however to differ, but it may only be the asiatic form.

Rh. sollers *Stgr.* (Vol. 3, p. 55, pl. 13 d). This name embraces a large number of varieties and forms, *sollers*, which will still have to be gone through to establish their claim to specific rank. The illustration in Main Volume suffices, though it might be a shade less yellow-grey. — **obscurior** *Stgr.* (9 d). We are giving a better *obscurior*. illustration.

Rh. sollertina *sp. n.* (9 d). This differs from *sollers* by the much bolder and clearer markings; it is *sollertina*, somewhat larger, grey-brown, the double transverse lines interfilled with paler shade, between them there is a heavy dark central shade; orbicular stigma somewhat diagonally oval, with dark and conspicuous centre. The postmedian area becomes gradually darker towards the lighter marginal zone; subterminal line is pale and clear, posterior to same dark acute-triangular marks on margin. Fringes faintly checked with dark. Hindwings grey-brown, dusky suffused at margin with dark marginal line and whitish fringes. From Aksu.

Rh. candida *Stgr.* (Vol. 3, p. 55, pl. 13 d). This is certainly a genuine species. The illustration is fair, *candida*, the markings should be somewhat more clearly prominent. — **obsoleta** CORTI ined. (9 d) is a nice, pale reddish *obsoleta*. yellow form with very faint, but clearly defined markings. From the northern Lebanon (Becharré).

Rh. vestilina *Hmps. (Pglr. ined.)* (9 b). HAMPSON held this still to be a *photophila* form, but it is *vestilina*. certainly a genuine species. It is smaller than *candida*, just as pale, somewhat more clearly and distinctly marked and differing mainly by the pure white hindwings having veins increasingly darkened with faint brownish shades towards the margin. Described from Aksu.

Rh. paralia *sp. n.* (9 d) is without a doubt very like *vestilina*, but is somewhat more sleek in build, with *paralia*. narrower wings. It is similarly coloured, but has clearer markings, transverse lines more distinct, the anterior one double, the posterior line with pale outer edge. The orbicular stigma is quite absent, reniform stigma is only a dot in the lower angle of cell; the central shade has a distinct and dark, boldly excurved line below cell; marginal area darker. Hindwings purer white than in *vestilina* with much less heavily darkened veins and marginal area. From Altyn-tag and Kuku-nor.

Rh. laetifica *Stgr.* (Vol. 3, p. 52, pl. 12 e). The old illustration is a copy that does not give the right *laetifica*. impression of this fine species. We are giving a fresh picture (9 c).

Rh. dormitans *Corti* ined. (9 c) is very close to preceding species, but is purer grey-brown and much *dormitans*. more monotonous in shade, markings however similar. Only the transverse lines are not so regularly euvied, the dentations being more irregular. Hindwings much paler and scarcely darker towards margin. Kuku-nor.

Rh. poecila *Alph.* (Vol. 3, p. 55, pl. 13 c). The illustration of this beautiful species is not good and *poecila*. we are giving a better picture (9 c). This species is widely distributed in Central Asia and apparently it is frequently common.

Rh. alaina *Stgr.* (Vol. 3, p. 51, pl. 11 c). The illustration is scarcely recognisable, we are illustrating *alaina*. this fine species afresh (9 e). — **alexandra** *B.-H. i. l. ?* (9 e) is a very dark form suffused with violet-grey *alexandra*. dusting so heavily that the markings are scarcely discernible. Also hindwings are very dusky.

Rh. junonia *Stgr.* (Vol. 3, p. 51, pl. 11 c). PETERSEN declares that this is synonymous with *alaina*, *junonia*. but nevertheless it appears to be a genuine species. Colouration is more ochreous without the reddish tone, hindwings are paler whitish and dusted with grey-brown. Illustration in Main Volume suffices.

Rh. achtalensis *Kozh.* According to wing contour this is most like *alaina*, but it is of quite different *achtalensis*. colouration with very diffuse markings. Ground colour is grey with brown admixture and luteous markings, which consist only of 2 transverse lines; the anterior one is almost straight and very wide, the posterior line is also wide, arc-shaped and heavily dentate; a dark mark between the stigmata, which are however entirely absent. The unicoloured marginal area is intersected by the slightly darker veins. Hindwings grey without any discal spot. Wing expanse: 39 mm. Described from the Caucasus (Achtala).

Rh. suavis *Stgr.* (Vol. 3, p. 51, pl. 11 d). The illustration of this fine and peculiar species is quite good, *suavis*. only the central area and stigmata might be slightly better defined. STAUDINGER created the Genus *Ammogrotis* for this species, but this seems superfluous. — **superba** *A. B.-H.* is of a much more lively colouration, *superba*. pale yellowish to brilliant yellowish red ground colour, varying considerably from type; forewings with fainter blackish dustings, stigmata and transverse lines standing out prominently, costal spots are distinct and blacker and fringes have bolder checks. Hindwings pure white and nicely glossy with only very faint shade or band at margin, which is often almost absent. Jaldus territory.

Rh. oreas *Pglr.* (Vol. 3, p. 56). This should be placed here and not to *renigera*. We are giving an illus- *oreas*. tration of the species (9 e). It is of monotonous pale grey colouration with peculiar stigmata, that stand out like dark spots and it is easily recognisable in consequence. Our illustration is of a ♀ and the ♂ is larger, sleeker and with wider wings. The marking, except for the stigmata, is very obscure. Hindwings pale luteous, darker at margin with discal lunule and postmedian band; fringes whitish. From Aksu.

violetta. **Rh. violetta** Stgr. (Vol. 3, p. 51, pl. 11 e). The illustration in Main Volume is not good, we are giving a fresh one (9 e). The species is remarkable by the narrow, paler marginal area of forewings and the small pale orbicular stigma with its definitely dark centre; the transverse lines are somewhat paler. Fringes with darker checks. Hindwings pale, increasingly dark towards margin.

socors. **Rh. socors** Corti (9 e). This is close to *sollers*, *helvetina* and also *lucernea*. Body and wings yellow-brown, markings rather diffuse, transverse lines rather more distinct, of the stigmata only the small reniform stigma is visible, anterior to same a dark diffuse central shade is indicated; outwardly of subterminal line there is a pale buff band, which gradually becomes darker towards the margin. Hindwings barely paler than forewings, only slightly so towards the base and having white fringes. Alexander Mountains; Djarkent (Tokmak).

helvetina. **Rh. helvetina** Bsd. (Vol. 3, p. 51, pl. 11 e). The following fresh denomination has been given to an aberration: — **fasciata** Vorbr. with distinct dark middle shade. Described from Gadmen. — Besides there are the following races: — **pyrenaica** Bours. of smaller size than the Swiss specimens and of pronounced yellowish ground colour. East Pyrenees (Porté) and Hautes Pyrénées (Gèdre), — **plumbina** Wgnr. (9 f) from Meran, Martell valley, is also a distinct race of almost dark slate-grey colouration. — The larva is unusually long and slender, of velvety dark blue-black colouration — “like ripe bilberries” — with pale brown legs and without discernible dorsal or lateral lines. It is superterrene, i. e. not a subterranean feeder and spins up in a frail puparium close to the surface of the ground.

gilva. **Rh. gilva** A. B.-H. has very similar markings to *helvetina* and is probably closely related, but the ground colour is pale yellowish. Forewings narrower with distinctly prominent central area, orbicular and reniform stigmata paler and more distinct, claviform stigma is absent. The marginal area is devoid of markings and with very faint dividing line in the yellow fringes. The unicoloured hindwings vary little in colour from forewings. Wing expanse: 40 mm. Taurus (Aintab).

plumbea. **Rh. plumbea** Alph. (Vol. 3, p. 52, pl. 12 i). The old illustration, which was made from a copy is now being replaced by a better picture (9 f). — **arschanica** f. n. (9 f) is a smaller, darker form with more diffuse markings; the white definition of the stigmata and transverse lines is absent and this is especially noticeable in the darkly shaded reniform stigma. From East Turkestan.

subplumbea. **Rh. subplumbea** Stgr. (Vol. 3, p. 52, pl. 11 e). This illustration also was bad and we are giving a better one (9 f). Also the description was incorrect. Forewings are by no means brownish fuscous, but very dull leaden grey to grey-black, the stigmata with faintly paler surrounds, the transverse lines extinct, only faintly indicated by yellowish scales, the outer line more sharply dentate. Hindwings impure grey, paler towards the base, darker at margin with discal lunule and dark transverse line. Underside more whitish, only more darkly suffused at costa. It occurs between Lob-nor and Kuku-nor.

diplogramma. **Rh. diplogramma** Hmps. (Vol. 3, p. 52, pl. 11 f). The illustration of this small and insignificant species is quite unrecognisable and we are giving a better one here (9 f). Forewings grey with ochreous admixture and peppered with brown, the anterior transverse line double, the posterior one single, dentate, with yellowish outer edge, between them a dark central shade; instead of the subterminal line, there is a row of ochreous dots with dark sagittate marks anteriorly.

proterva. **Rh. proterva** Pglr. (= *gregalis* Corti i. l.) (Vol. 3, p. 51) (9 g as “*gregalis*”). A small species, that at first glance looks like *diplogramma*, also like a small *devota*. Antennae with shorter fascicles of cilia than *diplogramma*, forewings with more elongate apex and wider outer margin; colouration greyer, markings otherwise similar, fringes whitish. Hindwings brownish grey. From Altyn-tag.

hampsoni. **Rh. hampsoni** A. B.-H. (11 i) is a very remarkable small species, that superficially resembles various *Anarta* species. Forewings grey-black with greenish sheen, partially bestrewn with yellowish. Orbicular and reniform stigmata somewhat darker black than ground colour, both transverse stripes indicated by yellowish lines, also a faint subterminal line before margin. Fringes yellowish. Hindwings grey-blackish with white fringes. From the Juldus territory.

squalida. **Rh. squalida** Gn. (Vol. 3, p. 49, pl. 11 g). The synonym *confinis* should be annulled. We are in a position to illustrate GUENÉE's type ex the collection of CORTI, ex coll. OBERTHÜR (9 g). The moth is much greyer than the illustration in the Main Volume and the markings are more delicate.

vadosa. **Rh. vadosa** Corti (9 g) is certainly very close to *squalida*, but it is much darker, so that the markings are less visible on the darker ground. Otherwise it is very similar, but the reniform stigma is much wider and the posterior transverse line has not a paler outer edge. Nothing can be seen of a paler subterminal line and the extremities of fringes are scarcely paler. Also the hindwings are much darker, especially at margin, whilst the whitish fringes contrast more vividly. Probably the Uliassutai specimens classified by STÄGER as “*confinis*” should be placed here. Changai Mountains.

Rh. suspicax *sp. n.* (9 g). Denoted by CORTI as a new species from 2 ♀♀ from the Taurus. It is paler *suspica*. grey, with coarser dark irrorations, otherwise closely resembling *squalida*; the markings are more distinctly black, especially the anterior transverse line; the subterminal line appears to be more distinct owing to darker interspersions on the inner side, in contrast to the paler marginal area. Orbicular stigma is both larger and elongated to a sharper point. Hindwings much whiter, scarcely darker at margin.

Rh. confinis *Stgr.* (9 g) is not identical with *squalida*, but is a separate genuine species. It is much *confinis*. paler grey and the colour is more uniform, transverse stripes sharply defined and distinct, they have not paler edges. Also the stigmata are not paler than the ground colour, but simply outlined by delicate black, the orbicular stigma being larger than in *squalida*; subterminal line is indicated by a darker edging on inner side, in contrast to the paler marginal area. Hindwings more uniformly pale grey-brown, slightly darker towards margin. Fairly widely distributed in western Asia, from N. Persia to the Altai.

Rh. inermis *Corti. ined.* (9 h). This is another closely related species. It is perhaps a shade darker *inermis*. than the very similar *vadosa*, but whilst in the latter the markings are clearly distinct, in *inermis* they are scarcely discernible in the dark ground. Stigmata and transverse lines are only faintly indicated; the narrow marginal area is somewhat paler, the subterminal line thus indicated is less undulate than in the other species. Hindwings more whitish, beyond the faintly darker subterminal line there is a narrow white marginal area and at the base of fringes there are interrupted blackish marginal streaks. Kuku-nor.

Rh. subuniformis *Corti ined.* (9 h). This is close to *confinis*, but more uniformly coloured although *subuniformis*. somewhat more irrorated. The transverse lines are much more faint and diffuse, of the posterior line only dots are discernible on the veins. The stigmata are only indistinctly outlined. Nothing is visible of the subterminal line and the heavy black marginal dots are very characteristic, as they are absent in the other species. Fringes somewhat paler than the ground colour. Hindwings pale, there is no darkening at the margin, in fact the base seems to be slightly duskier than the margin. Veins are tinted faintly brownish. From Thibet.

Rh. solida *Ersch.* (Vol. 3, p. 33) (9 h). This should not be placed in the *Euxoa*, but in close proximation *solida*. to the preceding species. It is very pale luteous, almost devoid of markings, only a few faint black dots on the veins as indications of the transverse lines and at margin, as in *subuniformis*, there are also delicate black dots. Hindwings still paler, faintly duskier towards margin. Veins faintly tinted with brownish. Kok-hand.

Rh. vacillans *Corti ined.* (9 h). This is another very similar species of this difficult group. It can be *vacillans*. differentiated by the uniform dark colour, which is most similar to that of *squalida*, but the transverse lines are not so distinct, being less curved, with flatter arcs and more heavily black without paler edge. The stigmata are scarcely paler, similarly heavily circumscribed by black without however being sharply outlined. Marginal area somewhat paler, a fine pale line anterior to the dark base of fringes. Hindwings much darker than in related species with more delicate dark line before the pale whitish fringes. Altyn-tag.

Rh. flacca *Corti ined.* (9 h). Also this species still belongs in the *squalida* group. Forewings uniformly *flacca*. and smoothly luteous, without irrorations. Markings like in the previous species, the transverse lines somewhat less undulate, the posterior one more distinct, owing to dark spots on the veins. It has no paler edge. The stigmata are small and without paler centres. Between them there is a darker oblique central shade. Subterminal line is only faintly indicated, being almost extinct. Fringes somewhat paler. Hindwings uniformly grey-brown, scarcely darker at margin. Apparently this is a fairly common species, that is often mistaken for *squalida*. It occurs at Issyk-kul and Aksu.

Rh. moechilla *Pglr.* (Vol. 3, p. 29). We can now give an illustration of a typical specimen of this nice *moechilla*. species ex the collection of CORTI (9 i). It should not be placed with the *Euxoa*, but certainly belongs here.

Rh. cucuna *Pglr.* (Vol. 3, p. 30, pl. 6 d). This also should not be classified with the *Euxoa*, but belongs *cucuna*. in the same group as the preceding species. As the illustration in the Main Volume was not very successful, we are giving a better picture here (9 i).

Rh. squalidiformis *Corti ined.* (9 i). Under this name a somewhat smaller representative of this group *squalidi-* of species is classified in the collection of CORTI. It is from Amasia and is paler, but with more irrorations *formis*. than *squalida*. Orbicular and reniform stigmata have rather darker centres and it is distinctly different from other species by the presence of a claviform stigma, which is absent in the others. The posterior transverse line is marked by dots on the veins, subterminal line is quite extinct, on the margin there are heavy black dots. Hindwings pale as in *suspica* and *inermis*.

Rh. opioleuca *Stgr.* (Vol. 3, p. 34, pl. 7 f). This was classified in the Main Volume among the *Euxoa*, but *opioleuca*. should certainly be placed here. The old illustration was bad and we are giving a better one here (9 i). It is very similar to *squalida* and especially to *vacillans* but it is browner with more indistinct and diffuse markings. Hindwings much darker than *squalida*. — **obsoletipicta** *Strd.* from N. Persia has markings of forewings effaced. *obsoletipic-*

Rh. aucta *Alph.* (Vol. 3, p. 49, pl. 12 d). The illustration in Main Volume is not recognisable, we are *aucta*. giving an illustration of a typical specimen ex the collection of CORTI (9 i). It is larger and with wider wings

than *squalida*, paler luteous, with more irrorations, the transverse lines sharply dentate, without paler edges. On margin there are heavy black dots with paler inner edges. Hindwings widely dusky at margin. Thibet.

velifera. **Rh. velifera** Corti ined. (9 k). Another close relation to *squalida*. It is somewhat smaller than *aucta* and much darker, more smoothly scaled and without irrorations. Markings more distinct, both transverse lines simple, sharply dentate, the posterior one with faintly lighter outer edge. Claviform stigma present. A paler subterminal line is more distinct than in allied species and has very dark shading on inner edge. Hindwings about as in *squalida*. From Kuku-nor.

stabulorum. **Rh. stabulorum** Bien. (Vol. 3, p. 49, pl. 10 k). The illustration in the Main Volume is a bad copy and we are giving a better illustration here (9 k). It is easily recognisable by the much greyer colour, which has a faintly greenish hue and the transverse lines which have paler edges. Persia.

glis. **Rh. glis** Christ. (Vol. 3, p. 49, pl. 12 d). This is somewhat similar to the preceding species in markings and pale edged transverse lines, but the colour is entirely different, being a red-brown. The old illustration was not good, we are giving a better one (9 k).

ravida. **Rh. ravida** Schiff. (Vol. 3, p. 49, pl. 10 k). This common and widely distributed species is very variable. In CORTI's collection, designated simply as "var". from Guberla and Minussinsk, there are specimens of very dark colour, which perhaps were intended to illustrate a race. We are illustrating one of these specimens (9 k).

salva. **Rh. salva** Corti ined. (9 k). This looks like a small, narrow winged, very pale *ravida* with heavy irrorations and the delicate markings are only indistinctly visible in the patchy ground colour. The subterminal line with slightly paler edge towards the darker postmedian area. Hindwings very pale, whitish. From the Juldus.

musculus. **Rh. musculus** Stgr. (Vol. 3, p. 50, pl. 11 b). The illustration of this smallish species is unsatisfactory. We are giving a better picture here (9 l).

quadrangula. **Rh. quadrangula** Zell (Vol. 3, p. 52, pl. 12 e). The illustration in Main Volume is unrecognisable, we are giving a better one here (9 l). The species is like the preceding, but it is of lighter colouration. It varies in the markings, but the transverse lines are usually fairly pronounced, the posterior one being double. The most striking feature is the dark quadrangular mark between the stigmata.

Rh. rattus Alph. (Vol. 3, p. 52).

ledereri. **Rh. ledereri** Ersch. (Vol. 3, p. 52, pl. 12 e). The illustration in Main Volume is unrecognisable, we are giving a better one of a typical specimen (9 l). The posterior transverse line is indicated by a double row of dots, behind these are sagittate marks before the pale wide subterminal line. On the margin there are also heavy black dots. The cell between the stigmata is filled with deep black, the claviform stigma is elongated and narrow. — **mus** Alph. (9 l) is a very dusky form without any pale patch. CORTI seemed to hold the opinion that this was a genuine species.

barbara. **Rh. barbara** Corti ined. (9 l). This is not far removed from *ledereri*, but it is much larger, with rather narrower wings and with greater irroration and more patchy markings. The dark interspersions of the cell between the stigmata is absent. Only the tip of the claviform stigma is faintly indicated. The sagittate marks in front of the subterminal line are absent and the marginal dots are only faintly present. Hindwings much paler than *ledereri*, somewhat darker towards margin. From the Alexander Mountains.

simulans. **Rh. simulans** Hufn. (Vol. 3, p. 52, pl. 11 f). The illustration in the Main Volume is too brown, it should be much greyer. The species often has an almost greenish tone. — **auguroides** Rothsch. (10 a) according to CORTI, is only a north African race. It is more brownish with irregular irrorations and indistinct stigmata. From Guelt-es-stel.

pseudosimulans. **Rh. pseudosimulans** Kozh. (10 a). This is very similar to *simulans*, but larger on an average, the wing contour is somewhat wider, the colouration paler, often much more yellow in tone. The markings similarly, but more delicately outlined. Hindwings inclined to be a shade darker. Differs in the genitalia. S. Russia, Caucasus, Transcaucasia, Turkestan, Transcaspi (Askhabad), Siberia (Minussinsk). *simulans* is distributed through the forest regions of N. Russia and Asia, whilst *pseudosimulans* occurs chiefly in the Steppes of the south.

Rh. nictymerina Stgr. (Vol. 3, p. 40, pl. 8 l).

subdecora. **Rh. subdecora** Stgr. (Vol. 3, p. 29). This species was not illustrated in Main Volume, we are now giving a good picture (10 a). It should not be classified with the *Euxoa*, but here. It also occurs in the Taurus (Marash).

Rh. psammia Pglr. (Vol. 3, p. 40).

similis. **Rh. similis** Stgr. (Vol. 3, p. 40). This species, which is very like the preceding one, is now being illustrated. (10 a). It was not illustrated in the Main Volume and the present picture is successful.

Rh. flavida Corti ined. (11 k). This species appears to be very isolated, but perhaps has affinities with *flavida*, *subdecora* and *similis*. Forewings and body pale yellowish with very faintly indicated grey transverse lines and outlines to stigmata. Between the stigmata a dark quadrangular mark. The subterminal line is indicated by grey dentate shadings on the paler marginal area. Hindwings grey-white. From Marash in the Taurus at an altitude of 800—900 m occurring in August-September. Type in the collection of CORTI.

Rh. asella Pglr. (Vol. 3, p. 51, pl. 11 d). Should be classified in this group. As the illustration in Main *asella*. Volume is not good, we are giving another one here (10 a).

Rh. wiskotti Stfs. (Vol. 3, p. 51). This very rare species, has of late been often successfully bred and is *wiskotti*. now illustrated here (10 d). It is very close to *similis*. It has no connection at all with *culminicola* with which it was formerly classified. Specimens in which the yellow scales almost completely cover the grey ground colour, are named — **flavidior** Schwing., whilst others in which the yellow scaling is almost entirely absent and *flavidior*. the markings appear very diffuse owing to intensively heavy dark grey dusting have been denominated — **deflavata** Schwing. Described from the Glockner region. The larva is not a subterranean one, but lives super- *deflavata*. terrene and is very active. CORTI was the first to successfully breed it from the egg. The full grown larva is dark olive-green, interspersed with violet-red spots and marbled with velvety black and yellow-grey markings. Subdorsally there are rectangular sulphurous yellow spots with a black dot therein. It changes to a slender, lively ochreous brown pupa in a frail puparium. According to CORTI its entire biology points to its being a close relation of *lucernea*.

Rh. astuta Corti (10 b). This is somewhat larger than the preceding species, the wide forewings are *astuta*. luteous with buff admixture, the double transverse lines heavily dentate, the middle shade in striations but developing into a wide patch between the stigmata. Reniform stigma large and elongate. Subterminal line double, sharply marked and heavily dentate. Marginal line reddish yellow. Fringes grey-brown. Hindwings somewhat paler than abdomen, clay coloured, faintly darker at margin. Fringes yellowish white with dark central line. The ♀ is somewhat paler and markings are more diffuse. Alexander Mountains. Issky-kul.

Rh. thapsina Pglr. (Vol. 3, p. 41). We are now giving an illustration of this small species from a typical *thapsina*. specimen in the collection of CORTI.

Rh. simulatrix Hbn.-G. (= nictymera Bsd.) (Vol. 3, p. 51, pl. 12 e). The illustration in Main Volume *simulatrix*. would not enable one to recognise this species and we are giving a fresh picture (10 b), as well as of the form — *dalmata* Stgr. (10 b) which was not illustrated at all before. According to CORTI the disputed relationship of *simulatrix* to *lucernea* can be definitely decided, as both are genuine, separate species. In my opinion this is clearly established by the fact that both occur concomitantly, as for instance in the Abruzzi. I have ex the collection of SOHN-RETHEL both species from there (Pescocostanzo and Gran Sasso), where they occur in forms that are easy to distinguish; *simulatrix* is more monotonous impure luteous with dull and diffuse markings, with similar hindwings, which never have pure white fringes. VORBRÖDT also separates the 2 species for Switzerland and indicates that *simulatrix* occurs more frequently in the lowlands of the Rhone valleys whilst *lucernea* is purely alpine. Specimens from Albarracin in Spain, where the species is frequent, exactly resemble the specimens from the Abruzzi. REBEL and ZERNY have described a form from Albania, named — **illyrica**, which has been placed with *lucernea*, as they were not certain as to whether a difference in species *illyrica*. existed. According to the description and the illustration I feel more inclined to classify this form to *simulatrix*, next to *dalmata*. In comparison with same, *illyrica* is darker, has more distinct and contrasting markings on upperside of forewings, rather whiter fringes to hindwings. On underside of hindwings, it differs by the dark marginal band which extends to the outer transverse line and merges with same. Nevertheless its position is uncertain and its final place will have to wait until the genitalia have been examined.

Rh. lucernea L. (Vol. 3, p. 51, pl. 11 d). WARREN already separated this fine species from the preceding *lucernea*. one. It is never such a luteous yellow, nor has it such diffuse markings. It is either browner or inclined to paler bluish to greenish grey; markings are much more definite, especially the subterminal line is more sharply dentate; hindwings always with quite pure white fringes and on underside with a wide clearly defined marginal band. — **cataleuca** Bsd. (10 b) illustrates a specimen from Meran. — **renigera** Steph. (10 c) an english form. — *cataleuca*. *renigera*. *dubia*. **dubia** Vorbr. a large grey-white form with diffuse marginal band on underside of hindwings. It thereby approaches *simulatrix*, but is never of such a clay colour and can always be distinguished by the sharply dentate inner and outer subterminal lines, which are characteristic of *lucernea*. From the Glacier de Trient, the Valais. — **arguta** Corti ined. (10 c) from the Pyrenees, resembles *dubia* by the more diffuse markings, but is *arguta*. darker; subterminal line is scarcely discernible. — **pescona** f. n. Drt. (10 c) from the Abruzzi, on the contrary, *pescona*. is a very pale bluish grey, very clearly marked form with unusually dentate subterminal line, central shade very apparent but narrow; marginal band of hindwings exceptionally wide and deep black. — **insulicola** Trti. *insulicola*. (10 c) is very similar, but generally the specimens are larger and forewings are always much darker. They have a much wider central shade and the margin is much darker so that the subterminal line is scarcely visible;

- owing to its more luteous colour, this form approaches *simulatrix*, but it is always easily distinguishable by the wide black marginal bands of underside. From Sardinia (Gennuargentu) and Corsica (Ajaccio). — **bureschi osmana**. *Toul.* is a very dark slate-black form with diffuse markings from the Belesiza Mountains. — **osmana** *Wgnr.* (CORTI i. l.) (10 c) is more yellowish, like *insulicola*, rather than typical *lucernea*, also the transverse lines are yellower. The underside of hindwings is especially characteristic, it has not the black adumbration of marginal area, but is luteous as in *simulatrix*. Fringes however are white as in *lucernea*. Taurus, Asia Minor.
- defessa*. **Rh. defessa** *Led.* (Vol. 3, p. 51). This nice species has latterly been obtained in good quantities in the Lebanon district and we are therefore in a position to give a good illustration (10 d).
- lucipeta*. **Rh. lucipeta** *Schiff.* (Vol. 3, p. 51, pl. 11 e). The old illustration of this fine species, which also occurs sporadically in central Germany, was unsatisfactory and we are giving a better picture here (10 d). — **bella** *Stephan* is an aberrative ♀ with very heavily pronounced luteous markings and extremely dark central shade and extinct subterminal line. From Heuscheuer (Glatzer Mountains). — *obscura* and — *pallida* *Druet* are scarcely justified denominations of darker and paler forms.
- ashworthii*. **Rh. ashworthii** *Dbld.* (Vol. 3, p. 52, pl. 11 f). We are giving a better illustration (10 d), as the illustration in Main Volume was not entirely satisfactory.
- candelarum*. **Rh. candelarum** *Stgr.* (Vol. 3, p. 52, pl. 11 g). The old illustration is barely recognisable, we are giving a better one (10 d). — **signata** *Stgr.* (10 e) is a nice form. The illustration is of a Swiss specimen. — **lactescens** *Trti.* (= *calcinia* *Sohn-Rethel*, *molisana* *Dhl.*) (10 e) is a remarkably aberrative and fine form of almost silvery white ground colour, faintly bluish in basal area, a trace of yellowish in central area and with more delicate and dainty markings than *signata* and entirely without central shade. From the middle and southern Abruzzi. — *rubescens*. ab. **rubescens** denotes specimens that occasionally occur, where the bluish grey colouration of the main form is suffused, especially in central area, with reddish or reddish yellow. SCHAWERDA described and denominated these from Saxony, but I have similar specimens before me from around Berlin.
- erythrina*. **Rh. erythrina** *Ramb.* (Vol. 3, p. 53, pl. 11 i). The illustration of this southern french form, that has become exceedingly rare, is too dull and markings are not clearly enough portrayed. We are giving a better picture here (10 f). The species is now also found in Italy (Central Apennines and Tivoli). In regard to Switzerland it is only in the Valais that it occurs. Meanwhile however it has been discovered in Dalmatia (Gravosa) and described as — **dalmatina** *Wgnr.* (10 f); this has a much darker and more purplish grey colour, similar to that of *A. senna* *Hbn.-G.* Among this series is a dark fuscous specimen: — ab. **vulpecula** *Wgnr.* — BOURSIN denotes somewhat still darker specimens from Trayas, which are classified with *dalmatina*, as — *corsicina*. **corsicina** *Schaw.* It is somewhat larger on an average than type, dark reddish brown with purplish violet suffusion. The transverse lines are much more distinct and faintly reddish. Forewings are silkily glossy. The pale reddish postmedian transverse band and light subterminal line are very striking. Hindwings grey. From Evisa. — **arcana** *Schaw.* (10 f) is another very pronounced form with completely black colouration and of larger size. From Vizzavona at 1100 m altitude. The colour is a dark grey-black with faintly violet hue, only the white costal spots are distinctly marked, transverse bands merely faintly indicated. Hindwings blackish, in ♀ entirely black.
- saucia*. **Rh. saucia** *Hbn.* (Vol. 3, p. 53, pl. 11 h). Besides the forms named in the Main Volume, the following have been denominated: — ab. **decolor** *Rbl.* very pale yellowish grey specimens with obsolete markings. From Croatia. — **fuscobrunnea** *Strd.* Thorax and forewings dark brown, stigmata, costal streak, subterminal area and apical streak grey. — ab. **philippsi** *Caspari* is probably identical with *nigrocosta* *Tutt*, like *saucia*, but with dark black-brown costal area. — **tenebricorsa** *Schaw.* appears to be a genuine race. It has dark black-brown ground colour, only the costal area is faintly reddish and paler. Markings are still just discernible. Hindwings strikingly black to the base. Also the underside is much darker than in type. Corsica (Col de Vergio, Monte d'Oro).
- eminens*. **Rh. eminens** *Led.* Vol. 3, p. 53, pl. 11 i). As the old illustration was not particularly good, we are giving a better one of this fine species (10 f).
- elegans*. **Rh. elegans** *Ev.* (Vol. 3, p. 53, pl. 11 i). The illustration in the Main Volume is not recognisable and we are giving a better one now (10 f). This nice species seems to be widely distributed; to be added to the localities mentioned already, is Italy, where it has been found in the Abruzzi, occurring in profusion.
- larixia*. **Rh. larixia** *Guen.* (Vol. 3, p. 53, pl. 12 i, not "21 i" as stated in Index). The illustration of this rare species is also not satisfactory. A better picture is now given (10 g). It is also found in the Lebanon (Becharré).
- funkei*. **Rh. funkei** *Pglr.* (Vol. 3, p. 53, pl. 12 i). The illustration is quite unrecognisable. This is a relatively small species and we are giving a good illustration here (10 g).

Rh. ocellina Schiff. (Vol. 3, p. 54, pl. 11 k). We are now giving an illustration of the form — *transiens* *transiens*. *Stgr.* (10 g), which was not shown in Main Volume. The form is generally paler than *ocellina*, but the lighter grey-white markings and especially the much more obscure transverse lines are very characteristic. It occurs throughout Central Asia.

Rh. alpestris Bsd. (Vol. 3, p. 54, pl. 11 k).

Rh. multifida Led. (Vol. 3, p. 54). We are now illustrating this nice species (10 g). The original type *multifida*. from the Brenner was paler and browner than the form — *sanctmoritzi* A. B.-H. which has a blacker ground *sanct-* colour with more striking pale markings. In fresh specimens these are bluish white. *moritzi*.

Rh. difficilis Ersch. (Vol. 3, p. 34, pl. 12 f). This species should also not be classified under *Euxoa*, but *difficilis*. probably belongs in the neighbourhood of the preceding species *multifida*. The illustration was not good and we are giving a fresh picture here (10 i).

Rh. degeniata Chr. (Vol. 3, p. 54, pl. 13 a). The illustration is fairly good, but we are giving a better *degeniata*. one of this variable species here (10 h). The illustration of the form — *defuncta* *Stgr.* (Vol. 3, pl. 13 a) in the *defuncta*. Main Volume is very good, the main difference lies in the much more distinct transverse lines.

Rh. dominans Corti ined. (11 i). This is very close to the preceding species, but has a narrower wing *dominans*. contour, no black collar, much paler markings and on underside of hindwings a wide transverse band, that only stretches to the centre of wing and is situate nearer the base than in *degeniata*. Uralsk (Emba river); Naryn.

Rh. candelisqua Schiff. (Vol. 3, p. 54, pl. 13 a). The illustration is quite good only perhaps a shade too *candelis-* brownish. — *rana* Ld. (10 h) is much paler silvery grey with more delicate markings. From the Abruzzi. — *qua-* *cyrnos* Schaw. is a much darker grey-black form with faint markings, also the body being dark grey. Corsica *rana.* *cyrnos.* (Monte d'Oro).

Rh. militaris *Stgr.* (Vol. 3, p. 41, pl. 9 a). This should be classified in juxtaposition to the preceding *militaris*. species. We are giving a better illustration here (10 h).

Rh. furushonis Mats. (= *roseni* Corti i. l.) (10 h). This may perhaps be a form of the preceding species. *furushonis*. It differs mainly by the absent transverse lines and corresponds therefore approximately to the form *rana* of *candelisqua*. Ground colour whitish grey, the basal longitudinal streak as in *militaris*, as also are the markings of the stigmata and the cuneiform marks on margin. Hindwings somewhat suffused with grey. From the Amur territory and Saghalin.

Rh. fidelis Joan. (Vol. 3, p. 41, pl. 9 a). This may perhaps belong close to the preceding species. *fidelis*.

Rh. porphyrea Schiff. (Vol. 3, p. 41, pl. 9 a). — *astur* *Culot* denotes the race from the S. Tyrol. Generally *astur*. they are larger and darker brown with some grey suffusion and without the rich red tone. Actually the name was given to identical specimens from the Pyrenees. — *nitescens* *Dhl.* from the upper Bavarian moors *nitescens*. are similarly dark grey-brown specimens with curtailed white markings, only the small orbicular stigma being still prominent, claviform stigma being extinct. I captured this form flying in the day time at the summit of the Himmelsschrofen near Oberstdorf (DRAUDT).

Rh. trifida Fisch.-Wald. (Vol. 3, p. 25, pl. 12 e). According to CORTI this species is neither a *Feltia* nor *trifida*. *Euxoa*. The usual type has a somewhat bistre brownish tone. — *atra* denotes specimens from the Crimea which *atra*. according to A. BANG-HAAS, differ by having deep black colouration. In consequence the white veins stand out more prominently. In the ♀♀ however this is less pronounced. The latter have dull grey-black hindwings.

Rh. spissilinea (= *picturata* Kozh.) (Vol. 3, p. 35, pl. 7 h). A fresh illustration is given here (7 a).

Rh. submolesta Pglr. (Vol. 3, p. 28, pl. 12 a). According to CORTI this is neither a *Feltia* nor *Euxoa*. *submolesta*. It has a rough frons but no crater. Fore tibiae with stout spurs. There is no corona to the valve. It seems best to classify the species here.

Rh. cursoriodes Hmps. (Vol. 3, p. 29, pl. 6 c).

Rh. viguraea Pglr. (Vol. 3, p. 29, pl. 6 c)

Rh. nyctopis Hmps. (Vol. 3, p. 31, pl. 61). — ab. *kuijarensis* *Strd.* has black-brown thorax and dark *kuijaren-* brown forewings with white interfilled double lines. Described from Kashmir. *sis*.

Rh. seditiosa Pglr. (Vol. 3, p. 31).

Subgenus: *Epipsilia* Hbn.

Rh. hyperborea Zett. (Vol. 3, p. 36, pl. 7 k). We prefer to select the northern form as type for this species *hyperborea*. and are illustrating a typical specimen from Esthland (11 b), as the illustration in the Main Volume was not

riffelensis. satisfactory in colouration. — **riffelensis** *Obth.* (10 k) is the larger and darker grey form from higher altitudes in the Swiss and tyrolese Alps (for instance Zermatt, Riffelalp, Ortler territory etc.). — **iveni** *Hbn.* We do not consider this to be identical with *alpicola* and are illustrating a very typical specimen (10 k). It is probably the largest alpine form. — **alpina** *Humphr. and Westw.* We are able to give an illustration of this nice Scotch and Irish form (10 k). It is said to have been taken, according to VORBRODT, in a few odd specimens also on the Riffelalp and in the Albula Pass. — **norvegica** *Strd.* differs from *alpina* by large, well marked stigmata, which are filled with grey-white scales. The reniform stigma however has a rusty red centre without a dark inner spot. Hindwings darker dusky brown. S. W. Norway.

coraxa. **Rh. coraxa** *Pglr.* (Vol. 3, p. 36, pl. 7 k). The illustration was bad and we are giving a better one here (10 l).

straminea. **Rh. straminea** *Leech.* (Vol. 3, p. 37, pl. 11 d). According to its structure this species must be classified here, whilst according to its appearance this would not be the case. From CORTI's notes it forms a group with *lorezi* and *destituta*, but I cannot think this is correct.

alexis. **Rh. alexis** *Kozh.* The author creates the Genus *Estimata* (*Kozh.*) for this and the following species. Thorax is hairy, antennae pectinate and ♀♀ have stunted wings. At the best they might claim the rank of a subgenus. They are very similar to *herrich-schaefferi* and are not larger than same. Ground colour grey, intermixed with yellow, white and dark scales, with white and brown markings, differing by the grey basal area, wider reddish brown central area, the stigmata which are pale but without dark circumscriptions, the quite round orbicular stigma and the cell between the stigmata, which is not darker. The grey marginal area is narrower, subterminal line dark brown. Hindwings dark grey without central spot and with pure white fringes. Wing expanse: 25—28 mm. Semiretshje (Dzhaidak mountains).

herrich-schaefferi. **Rh. herrich-schaefferi** *Alph.* (Vol. 3, p. 37, pl. 12 g). Also this, one of the smallest species, does not appear to really belong here. The illustration was unrecognisable and we are therefore giving a better one here (10 k).

vittata. **Rh. vittata** *Stgr.* (Vol. 3, p. 37, pl. 8 a). The illustration was not bad, but we are giving a better one here (10 l).

subvittata. **Rh. subvittata** *Corti* (10 l). Described from specimens in the Coll. OBERTHÜR. This species closely resembles the preceding one but is much smaller and can be distinguished by the completely absent orbicular stigma so that the costal streak together with the median nervure and the reniform stigma enclose an uninterrupted dark wedge-shaped area. Hindwings are paler than *vittata*. The type emanates from Ta-tsien-lu.

tibetana. **Rh. tibetana** *Stgr.* (Vol. 3, p. 37, pl. 8 a). In CORTI's lists this species is placed next to *pallescent* *Btlr.*, which is a *Cerastis*. This classification would perhaps be preferable.

infantilis *Stgr.* (Vol. 3, p. 37, pl. 8 a).

parvula. **Rh. parvula** *Pglr.* (Vol. 3, p. 37, pl. 8 a). The illustration in Main Volume is not satisfactory and we are illustrating this small species again here (10 l).

pancta *Pglr.* (Vol. 3, p. 37).

höferi. **Rh. höferi** *Corti* (12 l). CORTI also places this extraordinary species in the Subgenus *Epipsilia*, although it does not seem correct. Thorax black-brown, collar contrasting yellowish white. Forewings bluish grey-white to postmedian, dusted with brownish especially at inner margin of central area and with very heavy black basal streak. Transverse lines double interfilled with slightly paler colour. Orbicular stigma forming a small circle with black central dot. Reniform stigma velvety black with distinct blue-white circumscription, between the two a deep velvety brown central shade, which is bent in a rectangle at lower end of cell. Before the subterminal line is a wide faintly darker grey band. Hindwings pale brownish grey with whitish fringes. Ta-tsien-lu, from a single ♂.

Subgenus: **Diarsia** *Hbn.*

dahlia. **Rh. dahlia** *Hbn.* (Vol. 3, p. 46, pl. 10 e). The illustration is not bad, but it is rather too dark for the most usual form; such ♀♀ specimens are denominated: — **fusca** *Lenz.* The deep black dot at tip of claviform stigma, which is never absent is particularly characteristic of this species and always enables one to recognise same. In the collection of DR. CORTI there are a number of new forms of this group, which clearly were in part intended to be described as species. — **provincialis** *Corti* ined. (11 e). This is a robustly built rich brown form, well marked with bold dark bands in discal and subterminal areas. Especially the latter contrasts strongly from the paler marginal area. From Cogné. — **canescens** *Btlr.* (11 e). As will be seen from our illustration this is by no means identical with *subdolens*. It is an especially large form with sleek wing contour. Colouration is blackish brown with purplish grey hue and not red-brown. — **subdolens** *Btlr.* (11 e). On the other hand this is somewhat smaller, but nevertheless larger than the European form. It does not vary much from the type in colour, but the dark subterminal band is always distinct and pronounced. CORTI seems to have thought it possible, that this was a separate genuine species. From Sutschansk.

Rh. subochracea Corti ined. (11 e). This is an especially narrow winged species with pale markings. *subochracea*. Costal area more yellowish than the purplish black suffused inner marginal and marginal areas. Otherwise it is very like *dahlia*, but the more vertical transverse markings, which are never so oblique as in *dahlia*, indicate that same is a distinct species. Stigmata are smaller, the reniform stigma yellowish in upper half, in the lower half it is densely filled with blackish. From Ta-tsien-lu. Type in the collection of CORTI.

Rh. fannyi Corti ined. (11 e). This species is again one with wider wings. Ground colour inclined to *fannyi*. violet black, only the reniform stigma being somewhat paler and more yellowish than the ground. The space before same and behind the orbicular stigma is filled with deep violet black. The dot at end of claviform stigma is only very small. Discal and subterminal bands are only indicated by very faint lines and in fact all the transverse markings are only very faint and delicate. Hindwings uniformly bistre with slightly paler fringes. From 1 ♂ from Kuku-nor (Thibet). Type in the collection of CORTI.

Rh. henrici Corti ined. (11 f). This is another species of sleek build, wing contour being like that of *henrici*. *subochracea*. It is pale reddish brown with darker markings, generally similar in colouration to *Leucania evidens*. The stigmata are not paler than the ground colour, the claviform stigma is very wide, the dark dot in same is not black, but brown and only faint. The space between the stigmata and the central shade is deeper brown. Thibet. Type in the collection of CORTI.

Rh. subcanescens Corti ined. (11 f). The general impression reminds one of *dahlia*, but it is much *subcanescens*. paler brownish and without the reddish yellow tone. The transverse line markings are very delicately drawn and only faintly darker brown. The double anterior transverse line is also situate nearer the centre of inner margin. Central shade and subterminal band are faintly darker brown, the dot in the claviform stigma exceedingly minute. Orbicular stigma is not paler than the ground colour whilst the reniform stigma on the other hand is dotted with black in centre and filled with blackish at lower end. The fine somewhat paler subterminal line is shaded with dark on outer edge. On margin there is a fine slightly darker line. Hindwings uniformly dark grey-brown with pale yellowish fringes. Japan. Type in the collection of CORTI.

Rh. ochracea Wkr. (11 f). This species was omitted from the Main Volume. Outwardly it looks exactly like the preceding *subochracea*, but is immediately distinguishable by the pectinated antennae of the ♂ which in *subochracea* are only faintly fascicular ciliate. Generally the wings are slightly wider, otherwise the markings and colouration are identical. The costal area is perhaps a shade more yellowish than reddish brown, the inner marginal and marginal areas slightly more dusted with grey. The transverse markings are slightly more oblique. Hindwings darker grey-brown with reddish yellow fringes. Thibet; W. China; Japan.

Rh. dannehl Corti ined. (11 f). This remarkable species, established from a single caught ♂ looks like *dannehl*. an enormous, very wide winged *dahlia* of pure ochreous yellow colour and with very striking grey-black central band. The other markings are only faint, but the dot in the claviform stigma is distinct. Hindwings pale blackish with yellowish fringes and blackish marginal streaks. From Gran Sasso. Type in the collection of CORTI.

Rh. takamukui Mats. This should probably be placed in this group and it resembles the subsequent *takamukui*. *interca*. Forewings greyish brown with indistinct darker markings and double transverse lines. At base of cell there is a black-brown spot. Orbicular stigma is large with brown circumscription, open on top and below. Reniform stigma yellow-grey, claviform stigma small and black-brown. The fine pale subterminal line is shaded outwardly with brownish black and there is a dark triangle on costa. Hindwings somewhat paler, dusky towards margin and with dark central spot. Wing expanse: 49 mm. Japan (Honshu).

Rh. interca Mats. Forewings red-brown, markings like those of *deparca*, with large stigmata, orbicular *interca*. round, paler than ground colour, reniform yellowish, extended inwardly at lower edge and edged outwardly with brown. Transverse lines extinct, central line oblique, marginal veins peppered with grey; the posterior transverse line double, both collaterals widely separate. Hindwings grey-brown, paler at base with bistre fringes and extinct central spot. Wing expanse: 36 mm. Japan (Honshu).

Rh. deparca Btlr. (Vol. 13, p. 37, pl. 8 a). Looks very like *ochracea* but is much more reddish brown. *deparca*. The illustration is good.

Rh. stictica Pouj. (Vol. 3, p. 37, pl. 8 a) and — *semiplela* (pl. 8 b) are satisfactorily illustrated in Main Volume.

Rh. olivascens Hmps. (Vol. 3, p. 37, pl. 8 b).

Rh. torva Corti ined. (11 f). This is a narrow winged species, the colour is a brownish grey and markings *torva*. are much bolder and clearer than in the preceding species. All the transverse lines, also the subbasal are double and boldly dentate. The stigmata as in *dahlia*, also the spot in claviform stigma is present. Subterminal line distinct, pale with dark brown shade on both sides. Between same and the postmedian there are double black spots on veins with whitish between. Hindwings pale bistre with paler yellowish fringes. From Siao-lu. Type in the collection of CORTI.

- murtea*. **Rh. murtea** Corti ined. (11 f). This is somewhat similar to the preceding, but wings are wider, darker, more red-brown and markings more diffuse. The mediana is blackish in cell and the space between the stigmata is deeper brown. The transverse lines and stigmata are red-brown, not blackish. The subterminal line is quite extinct. Hindwings dark brown-grey with extinct central spot and arc, fringes and anal tuft reddish yellow. From Ta-tsien-lu. Type in the collection of CORTI.
- erythraea*. **Rh. erythraea** Corti ined. (11 g). This is a remarkable species, that is closest to *murtea*. It is however a rich brown, circumscriptions of stigmata and the interfilling of transverse lines being somewhat bluish white. The central area between and below the stigmata is deeper red-brown. The transverse lines are double, red-brown, similarly the inner shade of subterminal line and the fine crescentiform streaks on margin. Hindwings pale bistre with grey dusting and wide yellowish red fringes. From Ta-tsien-lu. Type in the collection of CORTI.
- arida*. **Rh. arida** Corti ined. (11 g). Also closely resembles *dahlii*. It is a wide winged, pale reddish brown species with very few markings. The transverse lines can only just be discerned, the posterior one being very long and sharply dentate. The small orbicular stigma is only indicated by 2 darker brown dots outwardly and inwardly. The reniform stigma is a very narrow yellow-red crescent with very thin inner blackish edge, the outer edge being slightly thicker. Before same there is a faint central shade passing close by the postmedian to the inner margin. The position of the subterminal line is only indicated by very faint brownish black cuneiform marks on its inner edge. Hindwings pale bistre with somewhat whitish fringes. From 1 ♂ from Seening (Thibet). Type in the collection of CORTI.
- festiva*. **Rh. festiva** Schiff. (Vol. 3, p. 39, pl. 8 h). This has been dealt with exhaustively in the Main Volume and its many forms described. The illustrations are also quite good, but CORTI in his notes takes — **primulae** *Esp.* as nomenclatural type, which in his opinion scarcely differs from *festiva*. To the many forms mentioned already we have to add — **disparata** Corti ined. (11 g) from Lapland which looks almost like a *brunnea* by its dark violet brown colour with still darker patch between the stigmata and its bright yellow-red anal tuft.
- lamentanda*. **Rh. lamentanda** Alph. (Vol. 3, p. 40). CORTI removes this from among the forms of *festiva* and considers same to be a genuine species. It certainly has wider wings than *festiva*.
- mutila*. **Rh. mutila** Corti ined. (11 g). This new species is very like *lamentanda*. It has wide wings like same, but it is not ochreous yellow, but pale brownish grey. The space between and before the stigmata is blackened. There is also blackish irroration behind the reniform stigma, the stigmata themselves are somewhat whiter than the ground colour. Transverse lines are indicated by sparse blackish scales, also claviform stigma is present. The subterminal line is fairly wide, paler than the ground and edged with a dark shade that is particularly noticeable near costa. Hindwings also paler like the forewings. Fort Naryn. Type in the collection of CORTI.
- norvegicola*. **Rh. brunnea** Schiff. (Vol. 3, p. 45, pl. 10 b). To be added to the forms are: — **norvegicola** Strd. head, thorax and forewings brownish grey with olive coloured suffusion, no reddish or purplish colouration. From *suffusca*. Söndmøre in Norway. — **suffusca** Strd. has paler grey-brown forewings, fringes browner than in type. The violet suffusion is only faintly visible in basal half of costa. The stigmata are not very distinct. In place of the claviform stigma, a small black ring. Hindwings fairly pale. Norway.
- flavibrunnea*. **Rh. flavibrunnea** Leech (Vol. 3, p. 46, pl. 10 e). This should be placed here according to CORTI together with the following species and *canescens* also similarly.
- brunnescens*. **Rh. brunnescens** Hmps. (Vol. 3, p. 56, pl. 13 g). This species is only somewhat browner than *canescens* and the markings are rather more distinct.
- Rh. ruficauda** Warr. (Vol. 3, p. 46, pl. 10 f).
- rubicilia*. **Rh. rubicilia** Moore (= *nigrosigna* Moore) (Vol. 3, p. 46, pl. 10 f). This is similar to the previous species, but it has a more olive yellow colour. The dusky brown-black hindwings have bright red fringes. Kashmir.
- Rh. basistriga** Moore (Vol. 3, p. 46, pl. 10 f).
- Rh. tincta** Leech (Vol. 3, p. 47, pl. 10 f).
- Rh. griseivena** Hmps. (Vol. 3, p. 47, pl. 10 g).
- descripta*. **Rh. descripta** Brem. (Vol. 3, p. 39, pl. 8 g). The illustration is rather too black and does not truly represent this small light grey species. We are therefore giving another illustration here (11 g). — **pachnobides** Stgr. (11 g).
- pachnobides*. DR. CORTI removes this from the list of synonyms, but I cannot say whether he intended same to be now considered a genuine species. According to FILIPJEV this is certainly not the case. It is larger, more robust and markings are brighter and more distinct. Ground colour is a soft violet grey, partly dusted with red-brown, the cell between the stigmata widely dark. Also the whole area behind the postmedian is dark grey-brown with a violet hue. Probably these two are only forms of some variable species. From the Amur.

Rh. punicea *Hbn.* (Vol. 3, p. 45, pl. 10 b). The description of this species was incorrect. There is no *punicea*. trace of "olive" to be seen. The ground colour is a dull brown with violet-grey suffusion, the bands are a warmer rufous.

Rh. marcida *Christ.* (Vol. 3, p. 34, pl. 7 e). This should be classified here although it has such a different *marcida*. appearance. It is certainly no *Euxoa*. As the illustration was poor, we are giving a better one here (10 i).

Rh. draesekei *Corti* (11 i). This resembles *marcida*, but is larger and differs by having a dark brown *draesekei*. dentate outer transverse line, oblique orbicular and dark claviform stigmata. It is not yet definitely certain where this species should be placed, but we are classifying it here. From China, the Western Mountains near Peiping.

Rh. pelita *Corti* ined. (11 h). This fine species shows a close relationship to *pachnobides*. It is smaller *petita*. and markings are brighter and more varied. The cell between the stigmata and also the space before the orbicular stigma are deep black, the central shade is narrower and more definite, there is a distinct subterminal line in the darkened postmedian area. Beyond same the marginal area is lighter and irrorated with bluish grey. A small black dot at end of claviform stigma. Hindwings darker than in *pachnobides*. From Raddeffka. Type in the collection of CORTI.

Rh. exusta *Btlr.* (Vol. 3, p. 45, pl. 10 c). We are giving a better illustration of the form — **nigromaculata** *nigromaculata*. *Graes* (11 h).

Rh. exustiformis *Mats.* This is very closely related to *exusta*, but it is smaller, the markings of forewings *exustiformis*. are darker. Between the stigmata there is a dark brown quadrate spot. The stigmata themselves are indistinct. The wide postmedian band extends to centre of inner margin. Hindwings pale grey with 2 diffuse black-brown bands behind the centre. Fringes ochreous reddish. From South Saghalin in August.

Rh. baja *F.* (Vol. 3, p. 44, pl. 9 k). — **cinigera** *Filipj.* (11 h) differs by bluish grey instead of reddish *cinigera*. brown ground colour of the type form. Size and markings are otherwise the same. The entire wing expanse is coloured a bluish grey in contrast to *coerulescens* *Tutt* in which only the costa and basal area are thus coloured; *cinigera* occurs from Minussinsk to East Siberia (Sutschan). — **nisseni** *Rothsch.* (11 i) is the *tunisian nisseni*. race, large, dull brown without the violet reddish tone of the main european type form. It has dull pale stigmata, very delicate transverse lines and with prominent dark dots on the subterminal line. Ain Draham, Tunis.

Rh. gadarramensis *Bours.* (11 k). This reminds one superficially both of *brunnea* and *dahlia*, also *guadarramensis*. of *festiva*, but it is held by its author to be nearest to *brunnea*. Ground colour is a darker red, not such a violet brown. Apex of forewings is straighter, not "slightly falcate". The postmedian area to the fringes is uniformly dark, the antemarginal area is no paler. At tip of claviform stigma the usual black dot. Orbicular stigma is large, almost quadrate, not paler than the ground colour. Between same and the reniform stigma which is filled with whitish at top and reddish brown below, the cell is dark. In front of the spotted pale subterminal line there are 3 small cuneiform marks. Hindwings brown with somewhat reddish fringes and dark central spot. From S. France, the High Pyrenees (Gèdre, Héas) and Spain (Sierra de Guadarrama); from the middle of June till mid August.

Rh. nebula *Leech* (Vol. 3, p. 46, pl. 10 e). In colouration and marking this reminds one very much of *nebula*. the form *cinigera* of *baja*, but it is paler grey and always larger. The illustration suffices.

Rh. tarda *Leech* (Vol. 3, p. 46, pl. 10 f). The illustration in the Main Volume is too indistinct. We are *tarda*. giving a better one here (11 k). It is also known to occur at Sutschansk. According to FILIPJEV it should be placed as a synonym to *dewitzi*.

Rh. dewitzi *Graes.* (Vol. 3, p. 47). We are now able to give an illustration of this small species (11 k). *dewitzi*. It reminds one less of *polygona* than of *tarda*, the previous species. This appears only to be rather darker violet brown, whilst *dewitzi* is lighter red-brown with paler yellowish costal area. Probably both are forms of one and the same species.

Rh. olivascens *Hmps.* (Vol. 3, p. 37, pl. 8 b).

Rh. homochroma *Hmps.* (Vol. 3, p. 40, pl. 8 l).

Rh. isochroma *Hmps.* (Vol. 3, p. 51, pl. 11 c).

Rh. orphnina *Pglr.* (Vol. 3, p. 45).

Rh. obuncula *Hmps.* (Vol. 3, p. 45, pl. 10 c).

Rh. mandarinella *Hmps.* (Vol. 3, p. 45, pl. 10 c).

Rh. ishidae *Mats.* The author compares this species to *E. recussa*, as however CORTI does not place *ishidae*. same to the *Euxoa*, I am placing it here owing to its resemblance to the other members of this group. Forewings

blackish brown, cell black; the quadrate orbicular stigma is open above and below, also the reniform stigma is quadrate; below the mediana there is a black basal spot, the short claviform stigma has a black circumscription; anterior transverse line is double, the posterior one is only distinct behind the cell; the black subterminal line is barely visible. Hindwings grey with dark discal lunule. Wing expanse 34 mm. Hokkaido.

rub. **Rh. rubi** *View.* (Vol. 3, p. 45, pl. 10 c). In regard to this common small species, we have to add that specimens that are especially heavily suffused with red are named — **quadratum** *Hbn.* — **floridoides** *Dhl.* is a name given by DANNEHL to very large pale and brightly marked and coloured specimens from the S. Tyrol. They are not identical with *florida* *Schmidt*, which is a North German form.

kermesina. **Rh. kermesina** *Mab.* (Vol. 3, p. 41). It has now been ascertained that this nice species, of which we are illustrating the red type (11 k) is much more widely distributed. To the localities mentioned in the Main Volume we have to add: Sardinia and Algeria, over wide areas and Syria (Akbès). The forms that have been found there have been partly described as *Athetis* (*Caradrina*) species. To be enumerated, partly as synonyms *flavida.* are: — **flavida** *Culot*; the type from Malaga is ochreous yellow with faint orange hue. Specimens from Algiers are more of a milky coffee colour. Only 3 black spots on the costa are visible of the markings, the transverse lines can only be discerned as minute black dots by means of a magnifying glass. The subterminal is as a rule slightly more distinct, with a darker shade on inner edge. Hindwings white in the ♂, brownish in the *delectans.* ♀. The more brownish form from Algeria is named — **delectans** *Obth.* which we are illustrating (11 l). — **suavis** *Obth.* is very like the red type, but it is more of a salmon reddish brown colour and has besides the 3 black *suavis.* costal spots, no other markings. Described from Lambessa. — **albida** *Ribbe* (= *pallida* *Fdz.*) are very pale *albida.* whitish specimens. — **selinoides** *Ribbe* (11 l) (= *darroensis* *Ribbe*) are grey specimens which remind one in *selinoides.* colour and marking strongly of *Ath. selini*. — **virescens** *Trti* (11 l) has greenish grey colouration and generally more distinct markings, especially the central shade and subterminal line. From Sardinia. It is sometimes very difficult to separate *kermesina* from some of the forms of *xanthographa*. Apart from the different genitalia, the ♂ antennae give a clue. In *kermesina* they have regular fascicles of cilia, whilst in *xanthographa* in each fascicle there is one longer outstanding hair. — The larvae hatch in September after having been 10 days in the ova. The full grown larva is reddish ochre brown, the dorsal and subdorsal lines that were present in the earlier stages, vanish at maturity. It has then only an indistinct lateral line and a darker band above same. It feeds on low growing plants and hides by day, but it is not a subterranean larva. When full grown it enters the earth and forms a frail earthen puparium in which it rests for 3—4 months before changing to a pupa. There is only one generation.² The moth emerges in September-October.

lycophotioi- **Rh. lycophotioides** *Rothsch.* (11 l). This is somewhat larger than the previous species. It is dark *des.* brownish buff, heavily peppered with black. Transverse lines and stigmata rather indistinct, only the reniform stigma has a rather more blackish centre. The pale subterminal is boldly shaded on inner side, somewhat like in *xanthographa palaestinensis*, which it sometimes closely resembles. There are distinct black dots on *straminea.* margin. Hindwings quite pure white, or faintly dusky at margin. — **straminea** *Rothsch.* is slightly more yellowish clay coloured and scarcely worthy of denomination. — **inconspicua** *Rothsch.* is a trifle more reddish *inconspicua.* yellow. Both these forms are just as heavily peppered with black as the type. Algeria (Guel-es-stel). — *faroulti.* **faroulti** *Rothsch.* established from a single ♀, seems to belong here, according to CORTI. It is unicolourous bluish grey with completely extinct transverse lines and rows of dots posterior to the outer line. Reniform stigma sharply circumscribed with black. Hindwings darker than forewings. Wing expanse: 42 mm. El Mahouna, Algeria.

algerica. **Rh. algerica** *Corti* *in*cd. (11 l). Under this denomination in CORTI's collection, there are specimens that are very like the previous one, but I am unable to state, without a closer examination, whether same are closely related. The structure of the antennae is certainly the same, only the fascicles of cilia are perhaps a little more robust and longer. It has wider wings and can be immediately differentiated by the pale brown-grey hindwings, which are not white but paler at the base. Forewings are the same brownish buff colour, but they are more regularly peppered with black than *lycophotioides*; the stigmata are larger, rounder; reniform stigma has no black centre; the space between the stigmata is scarcely darker; transverse lines are delicately black, dentate, the anterior one is only double near the inner margin; the dark subterminal shading extends from costa only to centre of margin; the dark marginal dots are absent. Type: 1 ♂ from Lambessa. October.

Rh. petersi *Christ.* (Vol. 3, p. 41, pl. 12 h).

Rh. tenuis *Btlr.* (Vol. 3, p. 40, pl. 12 b).

lorezi. **Rh. lorezi** *Stgr.* (Vol. 3, p. 40, pl. 8 k). The illustration of this remarkable species is fairly satisfactory. It has been captured in greater numbers recently and we are able to give another illustration here (11 i). It is an isolated species without closer relationship to the others of this group.

Rh. destituta *Leech* (Vol. 3, p. 40, pl. 8 k).

Rh. sikkima *Moore* (Vol. 3, p. 40, pl. 8 l).

Rh. stentzi *Led.* (Vol. 3, p. 42, pl. 9 f). The illustrations in the Main Volume were very good and *stentzi* suffice to identify this nice species. It is widely distributed in Asia. — **punjabensis** *Strd.* has greyer forewings *punjabensis* and a definite central line and more distinctly black claviform stigma. Kashmir, Punjab.

Rh. ulrici *Corti* ined. (12 a). There is no doubt that besides *stentzi* there is a second species that closely *ulrici* resembles same. In the first instance it has narrower, more elongate wings and it is of somewhat larger size. The colouration is approximately the same, but the postmedian area contrasts by its paler grey from the general reddish brown ground colour. The pale subterminal line beyond same is very regularly dentate. The claviform stigma is longer. Alexander Mountains; Kuku-nor.

Rh. dulcis *Alph.* (Vol. 3, p. 42).

Rh. refulgens *Warr.* (Vol. 3, p. 43, pl. 9 f).

Rh. musivula *Stgr.* (Vol. 3, p. 43, pl. 9 g).

Rh. obliqua *Corti* ined. (12 a). This is related to the *stentzi* group. It is a small species; collar deep *obliqua* velvety black. Forewings purplish black, paler brownish towards the margin. Costa widely pale grey, with faint violet suffusion like the stigmata. A deep black triangle basally below the cell. A wide bluish grey oblique band outwardly extends over the wing just beyond the deep black claviform stigma. Both the other stigmata shaped as in *stentzi*. The postmedian line is simple, undulate and dentate. Marginal area is narrowly darker than the paler brownish plain postmedian area. No distinct subterminal line. Small black triangles on margin. Hindwings uniformly bistre with more whitish fringes. Ta-tsien-lu. Szechuan. Type in the collection of CORTI.

Rh. c-nigrum *L.* (Vol. 3, p. 43, pl. 9 g). Various denominations of the darker aberration have been *c-nigrum* made of this very variable species. Actually these are all superfluous. The oldest name for same is probably: — **umbrata** *Schultz* (= *nigrescens* *Buresch*, *maerens* *Dhl.*). They are unicolourous dark violet-black specimens. *umbrata*. Only the triangular orbicular stigma that is paler towards costa, a black dot at base of wings and the costal mark are visible. — **rosea** *Tutt* are paler, somewhat reddish suffused specimens forming a transition to *degenerata* *rosca*. *Stgr.* — **depravata** *A. B.-H.* has duller blackish forewings with a slightly coppery sheen. Orbicular stigma and *depravata* the central costal paler mark are absent. Hindwings as in type form. Described from Yarkend. — **degenerata** *degenerata*. *Stgr.* (Vol. 3, p. 43, pl. 9 g). According to CORTI's researches, this is no separate species, as the genitalia are exactly as in *c-nigrum*. It is merely the paler and generally slightly smaller central asiatic form, which is also found in Spain.

Rh. stupenda *Btlr.* (Vol. 3, p. 43, pl. 9 h).

Rh. mandarina *Leech* (Vol. 3, p. 43, pl. 9 h).

Rh. vidua *Stgr.* (Vol. 3, p. 43, pl. 9 h).

Rh. subpurpurea *Leech* (Vol. 3, p. 44).

Rh. consanguinea *Moore* (Vol. 3, p. 44, pl. 9 h).

Rh. triangulum *Hufn.* (Vol. 3, p. 44, pl. 9 i). — **avellana** *Hirschke* are very pale reddish brown speci- *avellana* mens. — **obscurior** *Sälzl* are the counterpart, being very dusky. *obscurior*.

Rh. ditrapezium *Bkh.* (Vol. 3, p. 44, pl. 9 i). The illustration was not very satisfactory. We are giving *ditrapezium* a better illustration here (12 a). As in the former species, especially pale specimens are named: — **pallida** *Hoffm.* *pallida*. These are described from Styria, but occur everywhere. — **orientalis** *Strd.* Described from W. China and Japan. *orientalis*. They have darker bodies and forewings, the colour is a deep purplish. Hindwings as in type but with ochreous fringes.

Rh. plecta *L.* (Vol. 3, p. 44, pl. 9 k). Many aberrations of this common species are described. — **mucidata** *mucidata*. *Dhl.* The stigmata are extinct. The pale costal streak is widened covering the entire area of the stigmata and diffusing gradually outwards. — **rubricosta** *Fuchs* with costal streak darker reddish, forming a transition *rubricosta* to — **fuscicosta** *Hirschke* with costal streak still darker, so that it no longer contrasts with the red ground colour. — *fuscicosta*. **strigata** *Hirschke* denotes very pale specimens with more distinct transverse lines and dark triangular spot *strigata* on costa before the subterminal line. A distinct basal streak. — **fasciolata** *Heinrich* has veins at margin of *fasciolata* hindwings dusted with black to an extent of 2—3 mm, creating the impression of a subterminal marginal band. — **plectella** *Strd.* has a purplish costal area like *rubricosta*, but at the same time the subcostalis and mediana *plectella* have white streaks.

Rh. leucogaster *Frr.* (Vol. 3, p. 44, pl. 10 a).

Rh. sigma *Schiff.* (Vol. 3, p. 45, pl. 10 a). — ab. **terminalis** *Strd.* On forewings the costal and marginal *terminalis* areas, excepting near the anal angle are paler rose-red. In all probability this is the same as *nubila* *Esp.*

- stigmatula*. *Rh. rhomboidea* Esp. (Vol. 3, p. 45, pl. 10 b). — ab. **stigmatula** Hartig. This denotes specimens without the dark patch between the stigmata and in front of the orbicular stigma. Described from Terlan, but also found occasionally elsewhere, although it is a rare aberration.
- Rh. umbrosa* Hbn. (Vol. 3, p. 45, pl. 10 c).
- xanthographa budensis*. **Rh. xanthographa** Schiff. (Vol. 3, p. 46, pl. 10 d). A most variable species. — **budensis** Err. The illustration in Main Volume was not very satisfactory. We are giving a better illustration here (12 b). It is a very large sandy grey form with distinct and delicate markings. The following further aberrations are described: — **xanthostaxis** Dhl. Ground colour dark and unicolourous. Both stigmata with yellow centres. Subterminal line is also pale yellow. — **marginicornata** Dhl. describes similar specimens, which however have the marginal area pale yellow. — **astixis** Dhl. denotes specimens in which the stigmata have no circumscriptions. — **rufa astixis** Tutt are pronouncedly reddish specimens. — **obscura** Tutt, — **nigra** Tutt and — **funerea** Gauckler cover all shades of dark specimens and with the exception of the last named form, which denotes the extreme blue-black colouration, appear superfluous. — **almohada** Wgnr. (12 b). This is a pale reddish brown form. The space between the faintly marked stigmata is only slightly darker. Of the transverse lines only the posterior one is retained as a row of dots. Behind same is the distinct blackish submarginal band. Hindwings pure white with faint subterminal band which is separated from the similarly faint margin by a pale zone. This form occurs more or less as a race in Tunis.
- lepida*. **Rh. lepida** Costni. Whether this may claim specific rank, or whether it is merely a form of the variable *xanthographa*, has not yet been definitely ascertained. It is described from 2 ♀♀ and 1 ♂. Forewings dark red-brown, marked as the previous species, but the transverse lines are more simple, about as in *umbrosa*. The stigmata are quite extinct, with delicate yellow circumscriptions. There is a yellow streak on the mediana conjoining them as in *rectangula*. Only the reniform stigma is darker in its lower lobe. Claviform stigma is absent. Hindwings impure white with darker border and discal spot. From the Apennines of Modena, Sestola.
- pulvrea*. **Rh. pulvrea** Hmps. The position of this species is not yet definitely certain. CORTI places it with a “?” to *xanthographa*. HAMPSON placed it widely separated from this (*Agrotis* sens. Hmps.) in the Genus: *Lycophotia*, but the differences between these two “Genera” are so insignificant, that I am placing same in the *Rhyacia*. It has the appearance of a grey *palaestinensis* and does not differ in any way in the markings from *xanthographa*. Hindwings are white, veins and marginal band dusky, darker in the ♀, with white fringes. Wing expanse: 32—36 mm. Described from Cyprus.
- Rh. poliogramma* Hmps. (Vol. 3, p. 47, pl. 6 g).
- triseriata*. *Rh. putris* L. (Vol. 3, p. 49, pl. 10 k). — **triseriata** Moore the much darker form known from Japan and N. India, has now also been discovered in Szechuan (Omih sien, Kwanhsien). We are illustrating a typical specimen from there (12 b).
- herzi*. **Rh. herzi** Christ. (12 b). In the Main Volume this was united with the following species *coturnicola*, but this was incorrect; *herzi* is a somewhat smaller species and the ground colour inclines more towards an olive shade, the stigmata are somewhat larger, the orbicular stigma is quite round, the middle shade is more in the form of striations, the postmedian is not dissolved into dots. Its area of distribution is further westwards, in Mongolia (Uliassutai) and Transbaikalia (Vilui).
- coturnicola*. **Rh. coturnicola** Graes. (Vol. 3, p. 37, pl. 12 b) (10 l). As mentioned in the preceding species, this is somewhat larger, otherwise it is very similar. The colouration is redder, the stigmata inclined to be smaller, the orbicular stigma is not so regularly round, the central shade is wider merging with the dark area at inner margin. The postmedian is supplemented by dots on the veins. Claviform stigma is almost indistinguishable. From the Amur.
- modesta*. **Rh. modesta** Stgr. (Vol. 3, p. 50, pl. 11 c). This smaller species is best classified here. The illustration in Main Volume is not good. We are giving another illustration of the species here (12 b). It resembles *rubi*, but is smaller and with more elongate wings.
- argillacea*. **Rh. argillacea** Alph. (Vol. 3, p. 58, pl. 13 h). This also should be classified here. The Subgenus *Perisandria*, which was based on a ♀ with stunted wings, is superfluous. The species is variable, but rarely as pale as our illustration. We are therefore giving a better illustration (12 b) of the usual form, which in the Main Volume is enumerated as *albistigma* (Vol. 3, pl. 13 h).
- Rh. poliochroa* Hmps. (Vol. 3, p. 58).
- herzioides*. **Rh. herzioides** Corti ined. (12 c). This is a small species, belonging in the *plecta* group, resembling the form: *mucidata* Dhl. Pale rufous with widely diffused pale yellowish costal streak extending over cell and base. Of other markings there is only a black dot at base of costa, a dot on postmedian nervure and blackish marginal triangles. Fringes pale yellow. Hindwings thinly scaled, very pale grey. Base of fringes yellowish. Ta-t sien-lu. Type in the collection of CORTI.

Rh. digna Alph. (Vol. 3, p. 38, pl. 8 d). The illustration is fairly good, but rather too large and heavy. *digna*. the species is rather daintier. The author originally created the Genus *Raddea* for this species.

Rh. panda Leech (Vol. 3, p. 38, pl. 8 d).

Rh. molothina Esp. (Vol. 3, p. 38, pl. 8 e). A better illustration (12 c) is being given here. We are *molothina*. also illustrating a typical specimen of the rather daintier race — **occidentalis** Bell. (12 c). *occidentalis*.

Rh. perigrapha Pglr. (Vol. 3, p. 38, pl. 8 e). The illustration was quite unrecognisable. A better illustration of this very rare species is therefore being given here (12 c). *perigrapha*.

Rh. kononis Mats. According to the description I am inclined to place this species here. The author *kononis*. compares same to *deplanata* Ev. which is scarcely similar. Forewings brown with double transverse lines inter-filled with whitish. The very large oval orbicular stigma is pale grey, the cell before and behind same is black-brown. The narrow reniform stigma is also pale. Before the pale grey marginal area there is an undulate subterminal line with white spot on costa. Fringes paler, with blackish base line. Hindwings pale grey with darker subterminal band. Only ♀♀ are known. Wing expanse: 34—35 mm. North Saghalin.

Rh. castanea Esp. (Vol. 3, p. 39, pl. 8 g). In the south the form ab. *neglecta* Hbn. is the more usual. *castanea*. in Sicily for instance it appears to be the predominant form. In the Tyrol this grey form frequently has a brownish hue. In the S. Tyrol transition forms occur, i. e. *neglecta* with a heavy rufous tinge, which is not confined to the base. It is named — **subrubra** Dhl. and is said to differ from the english form *laevis* Haw., *subrubra*. which more or less corresponds to the nomenclatural type of *castanea*. — **syriae** Strd. has pure white hindwings *syriae*. with dark marginal band. Syria.

Rh. obsolescens Petersen according to the genitalia, is very close to *castanea*. It is however not a form *obsolescens*. of same, occurring however at the same time as typical very dark rufous *castanea*. In shape and markings it resembles *castanea*, but the ground colour is a nice dark leaden grey, somewhat like that of *ashworthii*, with bluish grey tone. Hindwings are darker than in *castanea*. The species occurs on heaths with scattered pine trees in Esthonia.

Rh. flavirena Moore (= *vulpina* Moore) (Vol. 11, p. 59, pl. 7 k) was omitted from Main Volume, but *flavirena*. occurs in Kashmir on the boundaries of palacarectic territory. CORTI classifies it next to the preceding species. It is larger, a bright fuscous, veins somewhat dusted with whitish and has a very distinct ochreous yellow reniform stigma. Transverse lines indistinct, only a few dots indicate the subterminal line. Hindwings blackish brown with ochreous red fringes. Wing expanse: 46 mm.

Rh. lucens Btlr. (Vol. 3, p. 49, pl. 11 f).

Rh. deplorata Stgr. (Vol. 3, p. 49, pl. 11 g). The illustration in the Main Volume was unsatisfactory. *deplorata*. A better illustration is given here (12 d).

Rh. sennina Stgr. (Vol. 3, p. 50). This is probably a genuine species. Apart from the narrower wing *sennina*. contour, it is much darker and the ground colour more speckled, markings less distinct, the dark patch in cell between the stigmata is absent as also is the black basal streak. We are illustrating (12 d) a specimen from Sutshanski-Rudnik.

Rh. senna H.-G. (Vol. 3, p. 50, pl. 11 a).

Rh. contorta Rbl. & Z. is somewhat larger than the closely related *senna*. It is wider in the wing, of *contorta*. glossy fuscous ground colour without the whitish grey admixture. Stigmata and double transverse lines are interfilled with brown and not with whitish grey. Marginal area a striking pale brown before the subterminal line. The latter has a dark shadowy inner edge. Hindwings dark black-brown, tips of fringes white. Wing expanse: 37 mm. From Albania (Bështriq), a single ♀ captured in August.

Rh. anachoreta H.-S. (Vol. 3, p. 50, pl. 11 a). The illustrations are satisfactory.

Rh. luperinoides Guen. (Vol. 3, p. 50, pl. 11 a).

Rh. stridula Hmps. (Vol. 3, p. 50, pl. 11 a).

Rh. cuprea Schiff. (Vol. 3, p. 50, pl. 11 a). The area of distribution, given as N. Europe. can be extended *cuprea*. to cover S. Bavaria, the entire Alps and Italy. The form from south Bavaria, that inhabits the moors, is named — **palustris** Osth. It is larger than the alpine specimens and is of uniformly dark colouration without *palustris*. paler basal and marginal areas. The form from the Abruzzi I denominate — **livescens** f. n. (12 d). It is more *livescens*. bluish grey in colour, the discal area is scarcely darker, but the cell is deep black between the stigmata with their delicate white circumscriptions and the claviform stigma is large. Also the mediana is delicately white. From Pescocostanzo. Specimens with a quite pale brown ground colour and almost extinct stigmata are

pallida. named: — **pallida** Hoffm. (= *pallescens* Stephan). Such specimens are described from Styria and the district around Glatz.

ononensis. **Rh. ononensis** Brem. (= *scaramangae* Alph.) (Vol. 3, p. 50, pl. 11 b and 12 d). The two names are certainly synonymous. The illustration on pl. 12 d is quite unrecognisable, whilst that on 11 b is fairly satisfactory. We are giving a better illustration here (12 d).

praecipua. **Rh. praecipua** Stgr. on the other hand is not synonymous with *ononensis*. It is a genuine species, which we are illustrating here (12 d). It is smaller and has narrower wings than *ononensis*, is of much duskier colouration, has no pale streaks on veins and only the median nervure and a wide costal streak are slightly paler. The subterminal line is scarcely discernible. Other markings however are fairly similar. Hindwings rather paler. Mongolia, Siberia, the Amur territory.

lasciva. **Rh. lasciva** Stgr. (Vol. 3, p. 50, pl. 12 d) cannot be recognised from the illustration in Main Volume. We are illustrating a fine specimen (12 c) from Margelan in Turkestan.

Rh. juldussi Alph. (Vol. 3, p. 50, pl. 11 b). The illustration fairly represents the species.

Subgenus: **Pseudospaelotis** McD.

conjuncta. **Rh. augur** F. (Vol. 3, p. 49, pl. 10 g). — ab. **conjuncta** Schille denotes a fairly common aberration in which a black longitudinal streak extends from reniform stigma to the posterior transverse line. — **tobolskensis** Shelj. is much darker black-grey with indistinct transverse lines and white fringes to hindwings. Tobolsk (W. Siberia). — **nigra** Vorbr. is a dusky, almost blackish form described from the Gotthard and also occurring in the Tyrol.

haruspex. **Rh. haruspex** Le Cerf. Forewings rufous; anterior transverse line faint, black, excurved in and below cell; stigmata with black circumscriptions, orbicular stigma small, inclined to be oval, claviform stigma 2 mm long and quite black, no central shade, the posterior transverse line forms a blackish shadowy band, that is extended outwardly on the veins forming projecting points. In place of a subterminal line, there are whitish dots with short blackish sagittate marks anteriorly. Hindwings blackish grey, somewhat paler at base. Wing expanse: 39 mm. Described from 1 ♀ from Morocco.

bipartita. **Rh. bipartita** Graes. (Vol. 3, p. 51). CORTI was in doubt as to whether this species should be classified here. In the Main Volume it was placed after *defessa* Led. Besides the type, only one other ♂ specimen is known to FILIPJEV, who would prefer to classify same near *brunnea*. According to WARREN it is certainly a *Rhyacia*. From Sutshan.

Subgenus: **Actebia** Steph.

fennica. **Rh. fennica** Tausch. (Vol. 3, p. 47, pl. 10 g). The illustration was poor, we are therefore giving a better illustration (12 b). This fine species is remarkable on account of its sexual dimorphism. In the ♀ the ochreous yellow inner marginal stripe is absent. Switzerland must be deleted from the area of distribution. VORBRÖDT is very doubtful and says that questionably many years ago 2 badly worn specimens were reported to have been captured in Aargau and on the Wengernalp. On the other hand PETERSEN states that the species is known to occur at Reval. KOZHANTSCHIKOV describes an — ab. **unicolora** that differs through the absence of the pale streak on inner margin of forewings; as unfortunately the sex is not indicated, it may be assumed that this is merely the normal ♀.

praecurrens. **Rh. praecurrens** Stgr. (Vol. 3, p. 56, pl. 13 g). The illustration in Main Volume is not satisfactory and we are giving a better illustration here (12 e).

flavomaculata. **Rh. praecox** L. (Vol. 3, p. 56, pl. 13 g). The form — **flavomaculata** Graes. is now illustrated (12 e) from a typical specimen from Yokohama.

adornata. **Rh. adornata** Corti ined. (12 e). A new species that should be classified here. Body and forewings brownish grey interspersed with coarse greenish white scales. These are most dense on head and patagia. Transverse lines are undulate and dentate, double, interfilled with paler scales; orbicular, reniform and claviform stigmata are large with black circumscriptions and greenish grey-white centres. Costa somewhat darker; subterminal line whitish with long black sagittate marks anteriorly. A distinct black marginal line; posterior to a yellowish white base line, fringes are checkered. Hindwings grey-brown, rather more thinly scaled and paler at base and in disc. A distinct black base line to fringes. From 1 ♂ from Ta-tsien-lu. Type in the collection of CORTI.

dizyx. **Rh. dizyx** Pglr. (Vol. 3, p. 39, pl. 8 f). The illustrations are not bad. The sexes diverge considerably. We are giving a fresh illustration of the ♂ (12 e) so as to show the relationship or affinity to the previous species and in accordance with the intention of CORTI.

Subgenus: **Amphitrota** Warr.

FILIPJEV has studied the question of the justification of this recently created Genus and has ascertained (Ann. Mus. Zool. Ac. Sci. URSS. 1927, p. 234) that at best it may claim the rights of a subgenus, in which *ravida* Schiff. (compare p. 70 of this Supplementary Volume) should be included, owing to the similarity in the genitalia. CORTI was inclined to think that *stabulorum* Bien. and *glis* Chr. should also be included. On account of superficial similarity we have classified them with the *squalida* group which is certainly closely related.

Rh. unicolor Wkr. (Vol. 3, p. 57) is a purely american species! The alleged specimen from Kamschatka has proved itself to be a *nigricans* L. and a second specimen, that had been bred at Sidemi, belongs to *suecica*.

Rh. suecica Auriv. (Vol. 3, p. 57, pl. 15 k) appears to be widely distributed over Asia and Europe. Meanwhile specimens have been captured at Moscow and Leningrad, as well as at Sutshan. Probably the species is often mistaken for others. FILIPJEV designates same as an inhabitant of the forests of european Siberia.

Rh. karafutonis Mats. is somewhat like *squalida* and is a large species with narrow wings. Forewings dark grey with delicate black markings, transverse lines double, the posterior line boldly undulate and dentate. The large orbicular and reniform stigmata are elliptical; the large claviform stigma conical; veins slightly dusted with black in outer area, the subterminal line paler grey. Hindwings paler than forewings, darker at margin and with white fringes. Wing expanse: 47—49 mm. S. Saghalin in August.

Rh. isshikii Mats. is closely related to the preceding species, but much smaller. Forewings dark grey with reddish hue. At base a short black basal streak. Anterior transverse line double, the posterior one single with paler outer edge. Orbicular stigma oval, incomplete above and below, reniform stigma only indicated by a black dash, claviform stigma indistinct, beyond same a faint central line. Fringes paler than ground with dark basal line. Hindwings pale grey with whitish fringes. Wing expanse: 35—40 mm. Saghalin. This and the preceding species are being placed here provisionally, possibly they would be better classified in the *squalida* group.

27. Genus: **Spinipalpa** Alph.

S. maculata Alph. (Vol. 3, p. 58). Compare also Vol. 11, p. 62.

28. Genus: **Xestia** Hbn.

X. antiqua Stgr. (Vol. 3, p. 58, pl. 15 k).

X. koeppenii Alph. (Vol. 3, p. 58, pl. 15 k).

X. ochreago Hbn. (Vol. 3, p. 58, pl. 13 i). This species, which has meanwhile also been discovered in S. Bavaria (especially around Oberstdorf) varies in colouration from buff to fuscous and rufous. — **pallida** Schaw. has very pale yellow-brown, faintly marked forewings and straw coloured hindwings. The larva is pale green with indistinct pale lateral stripe and feeds on Verbascum and Tussilago, probably also on other low plants; it hibernates in the open, but can apparently be forced. Recently it has also been found in Albania.

X. habichi Rbl. is almost exactly like *ochreago*, but differs in the antennae. In the ♂ without pectinations, serrate on inner side with two rows of fascicles of cilia, the length of which exceeds that of the width of the shaft. In the ♀ the cilia are longer and bolder than in *ochreago*. Length of forewings: 16—17 mm. From the Schneeberg near Vienna in July.

X. apfelbecki Rbl. ♂ with ciliate bipectinated antennae. Forewings short and wide, pale ochreous yellow with two delicate brownish transverse lines that are not dentated and with wide central shade. The stigmata are quite absent. Subterminal line extinct, inwards of same a faint brownish edge. Hindwings whitish, yellowish towards costa with delicate discal spot. Described from 1 ♂ from Bosnia.

X. miniago Frr. (Vol. 3, p. 58, pl. 13 i). — **antennalis** Strd. is a form with pale brown antennae, those of the type form being white. Forewings with completely transverse diffuse central shade. From Asia Minor.

X. xestiodes Hmps. (Vol. 3, p. 58, pl. 13 i).

X. fuscisignata Hmps. (Vol. 3, p. 58, pl. 13 i).

X. effundens Corti (12 f) should possibly be classified in a new Genus. Head and thorax are grey-brown like the abdomen. Forewings uniformly grey-brown. Of the transverse lines only the heavily dentate subterminal line is visible. Basally there is a very long, deep velvety brown basal streak. Orbicular stigma

large, grey-white, very elongated, elliptical on upperside diffusing into the somewhat paler costal margin. The large pale reniform stigma has brownish centre, the cell between the stigmata being fuscous. In the rather darker marginal area there are dark sagittate marks to margin. Fringes yellow-grey. Hindwings monotonous grey-brown. From 1 ♀ from Omeishan (Szechuan).

brunneago. **X. brunneago** *Stgr.* (Vol. 3, p. 59, pl. 13 k). The illustration is scarcely recognisable and a better illustration is now given (12 f) of a specimen from Kuku-Nor.

29. Genus: **Aplectoides** *Btlr.*

propitia. **A. propitia** *Pglr.* (Vol. 3, p. 59). I am not altering the order of the classification of this species, although CORTI was of the opinion that it did not belong here, without indicating however where he thought it should be placed.

furushonis. **A. furushonis** *Mats.* appears to stand about halfway between *propitia* and *speciosa*, differing from the former by the larger reniform stigma and a quadrate deep brown patch between the stigmata. Antennae pectinated as in *propitia*. Forewings grey peppered with black-brown and with black transverse lines. The large pale grey orbicular stigma is quadrate. The pale grey reniform stigma is also large. Central line wide, brownish, the space posterior to the dentate postmedian line is dusky brown. Marginal area light grey with black marginal lunules. Hindwings pale grey with obscure dark marginal band and discal spot. Saghalin in August.

speciosa. **A. speciosa** *Hbn.* (Vol. 3, p. 59, pl. 13 i). The illustration shows a transition to the *obscura* form and does not show a typical specimen. We are therefore now showing the type form (12 f). Specimens from central

obscura. Germany and Esthonia are almost identical with same. The form — **obscura** *Frey* is synonymous with *millieri* *Culot.* — **viridescens** *Trti.* is a race from the southern Monte Rosa territory and the Alpes Maritimes, occurring also occasionally as an aberration in the Engadine. It has greenish white ground colour, imitating the lichens of the rocks, on which the moths rest. In any case it is a much paler form than *obscura*, which is the general

janac. type occurring there. We are able to give illustrations of the forms — **janac** *Herz* from N. Siberia and *aegrota.* — **aegrota** *Alph.* (12 f). The former occurs at Tunkun, Sajan Mountains, the latter figures a specimen from *rybatchien-* Mongolia. The quite recently described — **rybatchiensis** *Kotzsch*, which is said to be a subspecies, taken on *sis.* the Rybatshi peninsular, would seem to be merely a slightly smaller form of *janac* *Herz*. An aberration of *elisabethae.* same with contrasting black and white markings is denominated — **elisabethae** *Kotzsch*.

borealis. **A. borealis** *Nordström* is a recently described new species, that is about midway between *speciosa* and the subsequent *An. laetabilis*. Forewings grey-yellow, coarsely scaled with brown, most densely so in central area. It has dark brown transverse lines and a delicate dark brown basal streak. The anterior line is undulate, the posterior one more dentate, both have diffuse grey-white edges on averted sides. The whitish stigmata have dark brown edges, the centres are not darker and also the cell space between them is no darker than ground colour. Claviform stigma is absent, or merely indicated as a small dash between the two transverse lines. Instead of a subterminal line there are dark brown sagittate marks and beyond same on the margin dark brown lunules. Fringes are grey-yellow with dark brown checks. Hindwings whitish yellow-grey with discal spot and wide brown central band that is darker on the veins. Wing expanse: 35.5—37 mm. It differs from *speciosa*, with which it is similar, by the postmedian line, which only forms one arc in the anal area, by the narrower central area and the band on hindwings. It differs from *laetabilis* by the shorter palpi, longer serrations to antennae, bristly spurs on fore tibiae and in the normally developed wings of the ♀. The genitalia of *borealis* are entirely different from those of the two species with which it is compared. Jämtland (Sweden); occurring as early as June.

30. Genus: **Anomogyna** *Stgr.*

kononis. **A. laetabilis** *Zett.* (Vol. 3, p. 59, pl. 13 k). The illustration is very good. — **kononis** *Mats.* differs from the main type form by much purer pale grey colouration with darker reniform stigma, hindwings with wide black-brown marginal band. It differs from the similar *sachalinensis* by the reddish tinge of the under-side and in this it resembles *tamanukii*. However it differs from the latter by a black-brown postmedian band on all wings. Wing expanse: 34 mm. N. Saghalin in August.

A. obliterated *Zett.* (Vol. 3, p. 59, pl. 18 a).

yatsugadakeana. **A. yatsugadakeana** *Mats.* is larger than *laetabilis*, although otherwise very similar. Forewings grey-brown, with whitish and black-brown markings. The double transverse lines interfilled with whitish, with black basal streak below median nervure. The very large orbicular stigma is white with black circumscription. Reniform stigma with brownish centre. The pale subterminal line has a blackish brown inner shade. Fringes with yellowish checks. Hindwings yellow-grey with dark discal lunule and marginal line. Wing expanse: 40 mm. Japan (Honsu).

sachalinensis. **A. sachalinensis** *Mats.* resembles a very dark *A. speciosa obscura*, but is much smaller and according to its build belongs to *Anomogyna*. Forewings grey, dusted with black. Anterior transverse line white, fine black outer edge. Orbicular stigma oblique and oval. It is white with dark centre. The white reniform

stigma has a black dot in centre. Posterior transverse line is similarly white, edged inwardly by a black dentate line. There are 2 black spots before the white subterminal line, one at costa, the other in centre. Fringes with black checks. Hindwings like those of *speciosa* with 2 black-brown undulate bands near margin. Wing expanse: 32 mm. N. Saghalin.

A. sincera H.-Schäff. (Vol. 3, p. 59, pl. 13 k). The typical *sincera* is a much paler grey and much larger *sincera*, with wider wings than the illustration, which might be taken as being the form *rhætica*. — **obscura** Helbig *obscura*, denotes dusky blackish specimens of the latter.

A. adducta Herz was omitted from Main Volume. W. PETERSEN has made a study of the species and *adducta*, states that same is a genuine species and not a form of *sincera*, as was presumed by HERZ. Ground colour of forewings is rufous, more or less dusted with whitish grey. Both stigmata, especially the reniform, are smaller. The transverse lines are scarcely discernible. The black basal streak is distinct in ♂, merely indicated in ♀. Subterminal line and sagittate marks before same are barely visible or not visible at all. Hindwings uniformly dusky yellow-grey without the grey-white hue of *sincera*. From Vilui.

A. tamanukii Mats. is like *sincera* but differs by the dark grey colour, larger and somewhat oblique *tamanukii*, orbicular stigma. The latter is larger than the reniform stigma which has a brownish centre. Costa and fringes with reddish tinge. Hindwings with wide black-brown marginal band. ♂ antennae serrate with sessile fascicles of cilia. Underside dusted with reddish brown. Wing expanse: 38—40 mm. N. Saghalin.

A. griseola Mats. resembles *tamanukii*, differing by the longer and narrower formation of wings and *griseola*, paler ground colour. Anterior transverse line distinct, with white inner edge. Orbicular stigma larger but extinct, the reniform stigma similarly, especially outwardly. Postmedian line narrower, a distinct black subterminal line. Costa and fringes without the reddish tinge. Hindwings paler, abdomen longer. Wing expanse: 41 mm. N. Saghalin in August.

A. albuncula Ev. (Vol. 3, p. 59, pl. 13 k). The illustration of this rare species in the Main Volume was *albuncula*, not successful. We are therefore now giving a good illustration of a specimen from Kamschatka (12 g).

A. gelida Sp.-Schn. (Vol. 3, p. 59, pl. 14 a). We are also able to give a good illustration of this rare *gelida*, species (12 g) from a typical specimen from Muonio (finnish Lapland).

A. vega Herz (Vol. 3, p. 59) (12 g) occurs in the Malchan Mountains. The description of forewings in *vega*, Main Volume: "elongate" was an error. It should have read: forewings bluish, ashy grey. It resembles *gelida*, but markings are more diffuse. The transverse lines are certainly not, as was previously stated, only plain towards inner margin. They are delicately and not conspicuously dark. The posterior line is much less sharply dentate. Both lines have whitish edges on averted sides. The distinct black patch above the median nervure is absent. Reniform and claviform stigmata are obscurely marked with brownish centres.

A. excavata Mats. somewhat resembles *vega*. Forewings ashy grey with black basal streak. On costa *excavata*, there are conspicuous black-brown marks caused by an enlargement at the commencement of the transverse lines. The large orbicular stigma is elliptical on top and has a black circumscription. Reniform stigma more obscure, the space between the two is filled with dusky brown almost in the shape of an "X". The transverse lines are delicate, the posterior line has a parallel row of dots on the veins. At subterminal line there are 3 dark sagittate marks inwardly on costa, in centre and at anal angle. Hindwing with central and subterminal bands. Wing expanse: 38 mm. N. Saghalin. It appears to me from the illustration and description that this species, *subgrisea* respectively *albuncula* are one and the same.

A. acuminata Mats. is said to resemble *tamanukii*, differing by the narrower and more pointed fore- *acuminata*, wings. Stigmata somewhat larger, claviform stigma however smaller, but distinctly circumscribed by black. The distinct postmedian line has a white outer edge. Wing expanse: 42 mm. N. Saghalin in August.

A. brunneopicta Mats. Forewings are darker grey-brown than those of the preceding species, with *brunneo-* undulate basal line and a black line that extends from base to postmedian along the submedian fold. Ante- *picta*, median line is undulate. The oval orbicular stigma is pale brown, elliptical at top, the auriform shaped reniform stigma has a rufous centre. Central line indistinct, brownish, posterior transverse line is delicately marked and undulate. In place of the subterminal line there are brownish dots which are more distinct between veins 4 and 6. Marginal area reddish brown with small black marginal lunules. Hindwings dark grey, paler at base and with black-brown discal spot. Wing expanse: 35—36 mm. N. Saghalin.

A. filipjevi Shelj. (= *nigrotecta* Corti i. l.) (12 g). Whilst the author placed this species next to *sigma*, *filipjevi*, CORTI classifies it here. It has the widest wings of any species of this group and is the duskiest. Thorax and hindwings sooty black with faint reddish sheen. The transverse lines, especially the posterior, are scarcely discernible in the dark ground. They are sharply dentate and have slightly paler edges on averted sides. On costa they expand slightly forming whitish spots. The small stigmata have black circumscriptions. No subterminal line is visible, however veins in marginal area are somewhat deeper black and terminate at base of fringes in a light spot. Hindwings dark grey-brown with heavy black marginal line. From the river Djelinda in E. Siberia and from the Sajan district.

A. leucocyma Hmps. (Vol. 3, p. 60).

Subgenus: *Pachnobia* Guen.

- tecta*. **P. tecta** Hbn. (Vol. 3, p. 39, pl. 8 g, h). The illustrations are not good and we are giving fresh illustrations here (12 g). CORTI removes this species and the following from *Rhyacia*. They are mostly newly described and he classifies them as a group under the above Subgenus. Whilst they certainly form a characteristic little group, it is doubtful whether there is any purpose in placing them in a separate Genus.
- banghaasi*. **P. banghaasi** Corti ined. (12 h) is larger and sleeker than the preceding species, more thinly scaled, greyer in shade and with more conspicuous whitish grey stigmata, marginal area and interfilling between the double transverse lines. In front of the sharply outlined subterminal line there are more or less distinct blackish sagittate marks. Forewings brownish grey with blackish central lunule, postmedian and subterminal shades. From Mondy in the Sajan mountains.
- sajana*. **P. sajana** Tshetv. (12 h) is also fairly close to *tecta*. Forewings whitish grey, sparsely peppered with reddish brown. This is more prominent in central area and it has a deep black-brown patch in the cell between the large whitish stigmata. Both transverse lines are faint, double, the veins beyond the outer line being black-white. The position of the subterminal line is indicated by black sagittate marks on costa, in centre and above anal angle. Margin and fringes are inclined towards rufous with blackish marginal lunules. Hindwings pale brown, darker at base and with discal lunule, postmedian and subterminal bands. Between the latter and the blackish marginal line, there is a whitish area. Sajan territory.
- amathusia*. **P. amathusia** O. B.-H. (12 h). According to CORTI this is not identical with the preceding species. It is larger and more robustly built, much more dusted with rufous; orbicular stigma more oblique; reniform stigma elongated inwards along the widely white median nervure; claviform stigma longer and more pointed. Hindwings uniformly darker brown. From Munku Sardyk in the Sajan district.
- amatoria*. **P. amatoria** Corti ined. (12 h) is also very similar. It is as large as *sajana* but much more uniformly red-brown. Markings otherwise as *amathusia*, but the transverse lines are not so sharply dentate, the reniform stigma is not so conspicuously elongated inwards, the central area is wider, claviform stigma is quite extinct. The chief difference however is a black-brown basal ray-like streak. Hindwings uniformly very pale brownish. From the mountains around Baikal. Type in the collection of CORTI.
- wockeï*. **P. wockei** Möschl. (= *scropulana* Morr.) (Vol. 3, p. 50). It was already explained on p. 29 of this Supplement that this species has no relationship with *westermanni* Stgr. The illustration on pl. 11 b indicated *scropulana* (not *scopulana*) Morr., which is an american species. We are now giving (12 h) a good illustration of the genuine *wockeï* from a specimen from Sajan (Tunkun). Forewings reddish brown, costal and basal areas dusted with pale bluish grey, as also are the orbicular stigma and median nervure. Reniform stigma is more reddish brown, ground colour of cell between the stigmata is deep black-brown. A faint black ray-like dash at base below median nervure. Transverse lines double, the anterior one almost straight and vertical, the posterior line dentate. The pale subterminal line has a dark inner edge. Hindwings pale brownish grey with discal lunule, postmedian and very wide dark marginal bands. Sajan. — **tundrana** A. B.-H. denotes specimens from Sajan and Ala-Tau with a uniform brownish colouration devoid of the bluish grey dusting.
- desiderata*. **P. desiderata** Corti ined. (12 i) is very similarly marked to *wockeï*, but is smaller and has narrower, more pointed wings. Ground colour is pale grey-brown, entirely without any reddish or violet shade. Transverse lines are not double, but faint, with whitish edges on averted sides. The anterior line is undulate and not straight. Marginal band of hindwings narrower. Also from Sajan (Tunkun). Type in the collection of CORTI.
- veruta*. **P. veruta** Corti ined. (12 i) is marked as *desiderata*, but in colouration as *wockeï*. It is readily separable owing to the heavier serrate antennae of ♂ having bold fascicles of cilia. Orbicular stigma is triangular, elliptical at top and diffusing into the costa, that is of the same shade. Reniform stigma is much narrower than in related species and from same a distinct central shade extends to inner margin. The posterior transverse line is only faintly dentate, it is double, the inner part is red-brown, the outer a grey shadowy band. Subterminal line is fainter than in the preceding species. Hindwings darker brown, otherwise identical, but the postmedian band is more deeply angulated below the cell. Fringes ochreous reddish. Munku Sardyk (Sajan). Type in the collection of CORTI.
- helenae*. **P. helenae** Corti ined. (12 i) closely resembles *veruta*, but is quite pale grey-brown without any reddish or violet tone, also the dark patch in the cell between the stigmata is quite absent, whilst the central shade is more distinct. Otherwise the markings are identical, so that this is perhaps only a pale and monotonously coloured form of the preceding species. Sajan mountains. Type in the collection of CORTI.
- nolens*. **P. nolens** Corti ined. (12 i) still belongs to the same group and most resembles *tecta*. It is pale rufous, the central area scarcely darker, the transverse lines are simple, deeply black with undulate dentations. The small stigmata in a blackened cell. Subterminal line has a narrow inner blackish edge. On the margin there

are barely visible darker lunules. Hindwings also as dusky as forewings, no postmedian or marginal bands or shade. Fringes somewhat paler. Shawyr (Tannuola mountains). Type in the collection of CORTI.

P. senescens Stgr. (Vol. 3, p. 37, pl. 8 b) can best be classified next to this group, as especially its *senescens*. form *semota* has greatest similarity to the preceding species. The illustration in the Main Volume is not satisfactory and we are therefore giving a fresh illustration here (12 i). The species, about which CORTI has published some notes, is very variable and scarcely one specimen identically resembles another. For this reason CORTI considers the name — **senilis** Stgr. (12 i) for the very pale form, unnecessary, while in my opinion *senilis*. this denomination had best be retained. — **semota** Corti (12 k) gives one the impression of being larger and *semota*. having wider wings. The colouration is deeper leaden grey, peppered with black scales. Reniform stigma with blackish centre, orbicular stigma leaden grey with black scales. The central area is duskier at inner margin. Antennae have rather shorter pectinations than *senescens*, but the genitalia show no material differences. Described from Sajon.

P. kungessi Alph. (Vol. 3, p. 37) (12 k) is possibly not a separate species, as the antennae are of *kungessi*. the same build and the genitalia are exceedingly similar, but forewings are devoid of markings and chalky white. Hindwings are much darker than forewings.

P. colorata Corti ined. (12 k). A very beautiful species, which in the arrangement of the markings closely *colorata*. resembles *amathusia* and allied species. We are therefore classifying same here. Head and patagia are more or less white, thorax red-brown. Forewings brownish mossy green. Circumscriptions of stigmata and the interfilling of the double transverse lines are white. All 3 stigmata have rufous centres, the cell between same being blackish. In front of the postmedian, a black dentate central shade extends. Subterminal line, as in allied species, with similar sagittate marks anteriorly. Hindwings pure white, only narrowly brownish on the veins and at margin. From Thibet. Type in the collection of CORTI.

P. erschoffi Stgr. (Vol. 3, p. 41, pl. 8 l) should be classified relatively close to *senescens* and is perhaps *erschoffi*. best placed here. As the old illustration was unsatisfactory, we are giving a better one here (12 a).

P. sublima Kozh. according to CORTI, should be classified close to *wockeii* and *sajana*. Body and fore- *sublima*. wings pale grey, the anterior transverse line is absent, a dark grey central line forms a right angle in the centre of wing. The posterior transverse line is indistinct, dentate. There are minute black crescents on margin. Orbicular stigma is quite absent, reniform stigma consists of a diffuse dark spot, without definite outline. The cell is very pale grey-white in front of the reniform stigma and is cuneiform in shape with deep black outline. Hindwings pale grey with dark veins and lunule. Wing expanse: 33 mm. Sajon mountains.

31. Genus: **Eurois** Hbn.

E. prasina F. (Vol. 3, p. 60, pl. 14 a). This very variable species, of which scarcely any one specimen *prasina*. is identical with another, has so many shade variations, that besides the denominations already given in the Main Volume, some further names have been given. — **viridior** Spul. denotes the bright mossy green form. *viridior*. — **olivacea** Lenz the yellowish bleached form. — **obscura** Lenz are very dark specimens, probably transitions *olivacea*. *obscura*. to *suffusa* Tutt. — **vittata** Heinr. has a dark central band on forewings, that contrasts conspicuously from the *vittata*. green ground colour; — **medio-nigra** Lenz is probably much the same. *medio-nigra*.

E. virens Btlr. (Vol. 3, p. 60, pl. 14 a). The illustration was rather poor. A better illustration of a *virens*. specimen ex the collection of CORTI is now given (14 a).

E. magnifica Moore (Vol. 11, p. 63, pl. 8 e) was known to occur at Sikkim and the species is well *magnifica*. illustrated in the indo-australian Volume. It now appears to have been captured on palaearctic territory, as CORTI enumerates same in his list. It closely resembles *virens*, but differs by the deep red inner margin, as well as the margin beyond the subterminal line. Hindwings are a deeper bronze-brown. Perhaps this is not a genuine species, but only a subspecies of the preceding.

E. occulta L. (Vol. 3, p. 53, pl. 11 g) should be classified here, according to CORTI, thus returning to *occulta*. the order in which it was placed by previous authors. In regard to the form — **implicata** Lef. (10 e) it must *implicata*. be stated that it is by no means identical with *passetii*. We have the opportunity of illustrating the type of *implicata* from the collection of OBERTHÜR. According to same this is a grey form with rather diffuse markings, which does not vary very much from the usual form. It more or less corresponds to — **grisea** Hanne- *grisea*. mann which is a monotonous grey form. — **pallida** Spul. denotes a paler and at the same time smaller form. *pallida*. with narrow whitish forewings without brown and with indistinct markings, almost resembling *Apl. nebulosa*. This form occurs predominantly in Esthonia. The counterpart — **passetii** Th.-Mieg. denotes the black form *passetii*. with transverse lines more or less interfilled with white. It occurs everywhere among the type and has especially been bred by Wiesbaden collectors in some beautiful forms. — **roseovirgata** Dhl. Just among these *roseovirgata*. dark forms, specimens occur with a rosy suffusion in the postmedian area, occasionally in the shape of spots,

but these are only visible in freshly killed specimens and they soon fade away. DANNEHL described same from Silesia, PETERSEN records them from Esthonia. — ab. **rectangularis** *Stephan* denominates an aberration in which the posterior transverse band is angulated forming a right angle below the costa. Otherwise the specimen is very pale, orbicular stigma very large, antemedian line indistinct. From the Glatzer mountains. — **fumea** *f. n.* (10 e) is an interesting race from the Ili territory. It is relatively small and with narrow wings, ashy grey with sooty dusky brown basal and marginal areas. In the latter the veins are pale and there are blackish sagittate marks before the subterminal line. Also hindwings are much paler. Type in the collection of DRAUDT. — **tibetica** *f. n.* (10 e) denominates a very outstanding subspecies, that is very large and with wide wings that are a monotonous smoky grey with quite extinct transverse markings and only the 3 large pale stigmata stand out distinctly in the dusky disc. Further there are 3 heavily black sagittate marks in the upper half of subterminal. Hindwings very uniformly grey-brown with white fringes. Thibet. Type in the collection of CORTI.

32. Genus: **Cerastis** *Fr.*

- C. leucographa** *Schiff.* (Vol. 3, p. 60, pl. 14 b). The old illustration was scarcely recognisable and we are illustrating afresh this widely distributed species (12 l). I have for instance specimens from Sutshanski-Rudnik.
- C. pallescens* *Btlr.* (Vol. 3, p. 60, pl. 14 b). The illustration is good.
- C. caelebs** *Stgr.* (Vol. 3, p. 60, pl. 14 b). The illustration is unrecognisable and we are giving a better one here (12 l).
- C. rubricosa* *F.* (Vol. 3, p. 60, pl. 14 b). — **norwegica** *Strd.* denotes small (wing expanse: 32 mm) specimens of grey-black ground colour without red admixture and with very distinct orbicular stigma. From northern Norway.
- C. coryphaea* *Pglr.* (Vol. 3, p. 61, pl. 14 c).
- C. sobrina** *Bsd.* (Vol. 3, p. 61, pl. 14 c). In regard to this species, CORTI has declared that same is not a *Cerastis*, but should preferably be classified with the subsequent Genus *Lycophotia* *Hb.* As we have placed same in the collective Genus *Rhyacia*, we are temporarily leaving same in the present position. — **confina** *Kozh.* differs from typical *sobrina* by having the transverse lines and stigmata finely and very distinctly indicated by black lines; otherwise they are usually indistinct. From the Tajga in the district of Minussinsk. Perhaps this is a separate species.
- C. witzenmanni** *Stdls.* (Vol. 3, p. 150, pl. 36 i). As a large number of specimens of this species have spurs on hind tibiae, same should be placed here according to CORTI and not with the *Spudaea* as was done in the Main Volume and with which it seems to have no affinity. It is very variable in colouration. A very pale ochreous grey form with greenish hue is named — **olivina** *Trti.* Described from Blidah (Algeria). — **plumbina** *Trti.* is ashy grey, somewhat reddish purple at margin. — **vinosa** *Obth.* (12 l) is a dark ochreous red form from Algeria and the East Pyrenees. — **griseivinosa** *Rothsch.* is a completely dark grey form that is suffused with purplish red. — **nigrolimbata** *Obth.* from Morocco has blackened fringes. This species is extraordinarily widely distributed: from S. E. France through Spain and over the whole of the western N. Africa.

33. Genus: **Orthosia** *Tr.*

- O. caecimacula* *Schiff.* (Vol. 3, p. 61, pl. 14 c). — **rhaeticaria** *Dhl.* is an especially large form from the Etschtal with bands and other markings more or less extinct, so that the wings appear smoother and plainer; ♀♀ mostly dusky, black-brown with violet tone. — **marsicaria** *Dhl.* in contrast to same, are relatively small, sleek, narrow winged specimens, the ♂♂ almost milky white with ochreous hue, the ♀♀ somewhat more dusky with brownish suffused hindwings. From the Abruzzi.
- O. senex* *Guen.* (Vol. 3, p. 61, pl. 14 d). — ab. **fumosa** *Bankes* are melanic specimens from England (Dorset). — **typhoea** *Trti.* is a somewhat similar form that is ashy grey with violet hue, markings being black instead of brown, hindwings narrowly dusky at margin. From around Mount Aetna, Sicily. — **monticola** *Dhl.* is the race from the high mountains in the southern Abruzzi. It is small and with wide pale blue-grey wings with dark scales and heavy grey-black markings. — **medioitalica** *Dhl.* in contrast to same, is large and is very pale whitish grey with yellow hue and faint, diffuse markings and yellowish stigmata. From the roman Campagna, mountains of Albania and the Sabine mountains.
- O. indiana* *Guen.* (Vol. 3, p. 61, pl. 14 e).
- O. parvispina** *Tshetv.* (12 l) is not an *Athaumasta*, but more closely resembles *A. cortex*. It is however certainly an *Agrotidae* and has bold spurs on hind tibiae. Forewings are pale yellowish grey, peppered with black, with short interrupted black basal streak. Transverse lines are double, especially the posterior one is sharply dentate, interfilling somewhat paler, stigmata large with delicate black circumscriptions and lighter

centres. Subterminal line pale with distinct "W" in centre, shaded with deep brown on inner edge. Fringes checked. Hindwings lighter with discal lunule, dentate postmedian and widely shaded subterminal bands. Sajon territory; Chingan: Province Chihli.

34. Genus: **Mythimna** Tr.

M. acetosellae Schiff. (Vol. 3, p. 62, pl. 14 f). — **consersa** Dhl. denotes specimens from the S. Tyrol *consersa*, with reddish forewings densely peppered with black-brown, thus appearing reddish grey-black. — ab. **deleta** *deleta*, Dhl. is applied to forms of any colour, where the row of spots in outer area is absent. — **grisea** Dhl. is a *grisea*, rare grey form, peppered with black. Southern Alps. — **pallida** Dhl. are very pale whitish grey-rose speci- *pallida*, mens with pale rose hindwings, markings sometimes only indicated. As a race in the central Italian moun- tains, as a rare form in S. Tyrol (Terlan, Lana). — **vorbodti** Wehrli is an aberrative specimen, small, wings *vorbodti*, more rounded, outer transverse stripe being absent, the outer row of dots confluent forming a transverse line. On hindwings only subterminal band is present. Arlesheim in Switzerland.

M. oxalina Hbn. (Vol. 3, p. 62, pl. 14 e). — **rosea** Dhl. are very pale, rosy grey specimens with irrorated *rosea*, hindwings. — **rufescens** Schaw. denotes a more reddish form, — **obscurata** Dhl. is a dusky slate-grey with *rufescens*, still darker central area. — **privata** Dhl. are unicoloured specimens without the line and row of dots in *obscurata*, outer area; these forms occur chiefly in the S. Tyrol. — **unipuncta** Kiefer is a transition to *privata*, with *privata*, one dot retained. — **nigriuscula** Krul. is a still duskier form than *obscurata*. *unipuncta*, *nigriuscula*.

35. Genus: **Hypoxestia** Hmps.

H. dilatata Btlr. (Vol. 3, p. 62, pl. 14 f).

H. fuscostigma Brem. (Vol. 3, p. 62, pl. 14 f).

H. ohtaniensis Mats. resembles *Cerastis sobrina*; forewings reddish brown with delicate undulate trans- *ohtaniensis*, verse lines, the anterior and posterior lines being double and interfilled with paler colour, the posterior part punctiform. Orbicular stigma obsolete, open on top and below, a brown quadrate patch between same and the indistinct reniform stigma; a blackish brown spot at lower angle of cell. Subterminal line pale, in- wardly of same a dark spot on costa. Marginal area paler, fringes reddish brown. Hindwings grey-brown, paler at base and inner margin. Wing expanse: 34 mm. Saghalin in August.

H. sachalinensis Mats. closely related to the preceding species, but it is more ochreous brown. A double *sachalinen-* basal line only visible on costa. A black dot at base of cell. Antemedian line double, distending to form *sis*, a black patch in place of a claviform stigma. Orbicular stigma large and round. Reniform stigma dusky, black at lower extremity and with pale outline on both sides; an almost straight central line extends from same to inner margin. Posterior transverse line as in preceding species. The paler subterminal line with 2 black dots inwardly on costa. Marginal area darker with black marginal lunules. At base of fringes a pale line. Hindwings dark grey, paler at base and with dark discal spot. Wing expanse: 34—39 mm. S. Sag- halin in August. — **rikovskensis** Mats. differs from type in that the reniform stigma is no darker than ground *rikovsken-* colour and by the absence of the 2 black dots at upper extremity of subterminal line. N. Saghalin. *sis*.

H. nyiwonis Mats. is very close to *sachalinensis*, but has narrower, red-brown forewings with more *nyiwonis*, oblique and single antemedian line, smaller orbicular stigma with dark centre, obsolescent paler reniform stigma. The double postmedian line is distinctly angulated on vein 4. The pale submarginal line is narrow, some- what excurved in vein 2. Inwardly of same there are no black sagittate marks on costa. Vertex and palpi red-brown. Wing expanse: 35 mm. N. Saghalin.

36. Genus: **Naenia** Stph.

N. typica L. (Vol. 3, p. 62, pl. 14 g). — **claricolor** Schaw. is a very pale, ochreous yellow form. Veins *claricolor*, and surrounds to stigmata heavily marked with pale yellow. Only the triangular mark in basal area, the patches each side of the stigmata and in front of the apex, are darker. Albarracin. — **contaminatoides** Schaw. *contamina-* is a counterpart to same. It is much darker. Veins and transverse lines are visible, but not paler. Ground *toides*, colour is brown with blackish markings. Stigmata finely outlined with pale yellow. Very similar to the sub- sequent *contaminata*. Described from Mostar.

N. contaminata Wkr. (Vol. 3, p. 62, pl. 14 g).

37. Genus: **Epilecta** Hbn.

E. linogrisea Schiff. (Vol. 3, p. 62, pl. 14 g). The illustration is too unicolourously grey. Freshly emerged *linogrisea*, specimens are a beautiful greenish white, marbled with violet-grey on forewings.

E. accipiter Fldr. (Vol. 3, p. 63, pl. 14 h).

38. Genus: **Triphaena** Hbn.

Dr. CORTI has rectified certain misconceptions of L. W. KOZHANTSCHIKOV in an excellent article published in Munich (Mitt. Münch. Ent. Ges. 18, p. 53, 1928) and has demonstrated that according to present day knowledge the species *pronuba*, *comes* and *orbona* should not be separated from *fimbria* and allied species. WARREN had classified them with the *Rhyacia*, but we are now again placing them here in their correct position.

T. efflorescens Btlr. (Vol. 3, p. 63, pl. 14 h).

T. semiherbida Wkr. (Vol. 3, p. 63, pl. 14 h).

nuba. *T. pronuba* L. (Vol. 3, p. 42, pl. 9 e). — **nuba** Kaiser denotes the unicoloured yellow-grey to ochreous brown form with very diffuse markings, only the reniform stigma has a darker centre. Hindwings are a paler yellow, black margin is narrow. — **pallida** Kaiser is an aberration of delicate pale grey colouration, forewings daintily but distinctly marked, hindwings very pale yellow, the outer band pale grey. — ab. **denigrata** Schultz designates the rare aberration in which the black marginal band of hindwings is entirely absent or only retained as a vestige. Described from Kufstein. — **decolorata** Trti. described 4 years later. is probably the same as the preceding form, but in this case the forewings also are paler than in normal *pronuba*. Described from the Apennines of Modena. A further similar specimen is in the collection of SOHN-RETHEL from Rome. — *cracoviensis* Prüffer is an aberration obtained through the influence of chemicals and the name is not justified.

jago. *T. fimbria* L. (Vol. 3, p. 63, pl. 14 i). — ab. **jago** Cath. has hindwings and abdomen a deep coffee-brown, instead of yellow, otherwise it is like the *solani* form. — **nigrescens** Busse is a dusky form described from Brunswick. Similar dark forms in various grades of colour are named — **obscura** Lenz from Herrsehung *obscura.* — **variegata** Lenz. from the same locality, are very variegated specimens with whitish marginal area, dark *variegata.* central area and deeply dark reniform stigma.

caliginosa. *T. interjecta* Hbn. (Vol. 3, p. 63, pl. 15 a). — **caliginosa** Schaw. from Lovrana, Fiume, is a race with pale brown forewings and delicate markings. Hindwings also paler yellow and marginal band only half as wide as type, no discal spot or basal rays.

obscura. *T. janthina* Schiff. (Vol. 3, p. 63, pl. 15 a). — **obscura** Culot denotes very dusky specimens. — **algorica** *algorica.* *Obth.* is a smaller, more compactly built race with forewings of deep blue-grey hue. Algeria. — **intermedia** *intermedia.* *Rothsch.* is a transition form to same from Tunis.

haywardi. **T. haywardi** Tams, described as a *Lycophotia*, but doubtless should be classified here. It is a brightly marked species, that reminds one of *Calymnia achatina* Btlr. (Vol. 2, p. 231, pl. 47 h). Forewings cinnamon brown to reddish with mahogany red lines and oblique shades. The lines outlined on averted sides with white, reddish yellow and grey scales and thus standing out more distinctly. The stigmata rosy red with white rings and circumscribed with mahogany red, the reniform with much darker centre. Both transverse lines are irregularly undulate. Subterminal band has a dark inner dentate edge and pale reddish yellow outer outline. Marginal area, especially on the veins, is dusted with ashy grey. Beyond the red marginal line, the fringes are intersected between the veins with reddish yellow. Hindwings orange or deep chrome yellow with very wide brown-black marginal band, which has two deep indentations before the anal angle and in centre. Fringes pale orange-yellow. Abdomen creamy yellow. Thorax red-brown with admixture of yellow and red. Wing expanse: 33–36 mm. Cyprus in June and July. According to a letter from N. J. KUSNEZOV to Dr. CORTI, the former also captured 3 specimens in the Crimea.

T. atlantica Warr. (Vol. 3, p. 42, pl. 15 i). Please note correction in the plate number.

T. orbona Hufn. (Vol. 3, p. 42, pl. 9 d). An aberration has been denominated that corresponds to the *non marginata* of *pronuba* — **non marginata** Luc. (= *demarginata* Schultz), the former was captured at Vendée, the latter at Hanover. The black band on hindwings is extinct or only retained as a vestige. *attenuata*. Warr. (Vol. 3, p. 42) is a transition to same. In conjunction with *nigra* Tutt, which is the melanic scotch form, we have — *nigra* Pieszeck, which is a similarly aberrative continental mainland form from Mödling *robusta.* — **robusta** Trti. is a very large and wide-winged race with more robust body from Cyrenaica. The yellow of hindwing is inclined to orange, the marginal band is more diffuse and less deeply black, the central lunule *olivacea.* inclines to obsolescence. — **olivacea** Trti. is a form that is suffused with olive-green on forewings, corresponding to the form *solani* of *fimbria*. The synonyms mentioned in Main Volume in this species were partially incorrect. In *subsequa* it should have read Schiff. nec Esp. and not the inverse; *comes* should be cancelled and utilised as the name for the subsequent species. Also *pronuba minor* should be deleted.

comes. **T. comes** Tr. instead of “*subsequa*” (Vol. 3, p. 42, pl. 9 e) and the latter is a synonym with the author Esp. nec Schiff., not the reverse! To be added as synonyms: *pronuba minor* Vill., *orbona* F. nec Hufn. Further the following forms should be classified here: *adsequa* Tr., *prosequa* Tr., and *bergensis* Sp., which in Vol. 3 were incorrectly placed with *orbona*. On the other hand *consequa* Hbn. and *sarmata* Rbr. *corsatra.* should be removed and inserted under *orbona*. — **corsatra** Schaw. is a Corsican aberration, forewings uniformly

deep black, with silky gloss and bluish grey sheen, only the surrounds of stigmata and the postmedian line are indicated in a lighter shade. Band of hindwings is a deep jet-black. Col de Vergio.

39. Genus: **Eueretagrotis** *Smith.*

E. patricia *Stgr.* (Vol. 3, p. 64, pl. 15 b).

E. agathina *Dup.* (Vol. 3, p. 64, pl. 15 b). — **turonica** *Culot* (13 a) is a very large, brightly marked *turonica*. form from France. — **rosea** *Tutt* (13 a) denotes very pale specimens from England with rosy suffusion. *rosea*. We are illustrating the blackish *scopariae* (13 a) from a fine specimen from Alsace.

40. Genus: **Rhynchagrotis** *Smith.*

Rh. chardinyi *Bsd.* (Vol. 3, p. 64, pl. 15 b). The form mentioned in Main Volume with basal half *chardinyi*. of costa and edges of stigmata white, is denominated — **fuchsii** *Wendl.* Insignificant variations in colour are *fuchsii*. denominated: — **brunnea** *Zölln.* fuscous; — **rubra** *Zölln.* rufous; — **albida** *Zölln.* pale whitish specimens. These *brunnea*. names would seem superfluous. — **melanos** *Zölln.* hindwings suffused with blackish. A further aberration *rubra*. — **babylonica** *V. Schultz* has orbicular and reniform stigmata extinct, only the outer edge of the latter is *albida*. visible, from the upper and lower ends of same 2 lines extend towards the base that converge in a sharp *melanos*. angle basally of the orbicular stigma. — **weissi** *Du Bois* denotes specimens in which the rich brown tone *babylonica*. of the central shade extends to the base along the hind margin covering the forewing to the centre. This *weissi*. species has of late years been met with locally abundantly in E. Prussia. The full grown larva is grey-brown with white dorsal and subdorsal lines and it has a wide somewhat reddish lateral stripe. It is polyphagous on low growing plants.

41. Genus: **Isochlora** *Stgr.*

I. maxima *Stgr.* (Vol. 3, p. 64, pl. 15 b). — **maculata** *A. B.-H.* (13 a) differs from the main form by *maculata*. having a white lunular mark at close of cell. Besides margin of hindwings is more widely white. From the Juldus territory.

I. yarkenda *A. B.-H.* is very close to *albivitta* *Alph.* (Vol. 3, p. 64, pl. 15 d) but is easily distinguishable *yarkenda*. by the absence of the white basal streak. The green colour of forewings is a more luscious shade. Costa, reniform stigma and the minute spot behind same are pure white. Also hindwings are purer white. Wing expanse: 40 mm. Yarkend (Mustag-ata).

I. longivitta *Pglr.* and *leuconera* *Pglr.* (Vol. 3, p. 65) are illustrated on pl. 13 a.

42. Genus: **Actinotia** *Hbn.*

A. hyperici *Schiff.* (Vol. 3, p. 65, pl. 15 d). — **dilutior** *Wgnr.* has right of priority and supersedes *laetior* *dilutior*. *Warr.*, the latter being synonymous. ZERNY has ascertained that the name only applies to ♂♂ and that the corresponding ♀♀ are normally dark. — **alba** *Ribbe* are specimens that are devoid of markings in outer half *alba*. of forewings which is pale whitish. — **brunnescens** *Ribbe* has a wide brown streak from reniform stigma to *brunnescens*. wards outer margin. — ab. **nigra** *Ribbe* has a large black triangular inner marginal spot on forewings, the *nigra*. black of the stigmatal streak, the outer marginal streak and the black dash below the stigmata being conjoined and forming a triangle. All these forms are described from Spain; however *dilutior* or *laetior* also occur in quite a similar form in Asia Minor. — **quietior** *Dhl.* is a form from the S. Tyrol in which all the *quietior*. reddish tones in the forewing are replaced by grey. The markings are all obscure and hindwings also are deep grey. The stigmata are usually somewhat reduced in size and basal area is dusky suffused from the costa. — ab. **siegenfeldi** *Schaw.* is a still more dusky form, also the marginal area is dark grey and not brown, *siegenfeldi*. the subterminal line is absent. From Mostar.

42 a. Genus: **Auchmis** *Hbn.*

A. comma *Schiff.* (Vol. 3, p. 509, pl. 75 l). — **obscura** *Schwing.* denotes very dark specimens. — **andalusica** *Ribbe* is a counterpart from Spain, colouration is more of a monotonous grey-white, generally without *obscura*. the black basal streak, also the blackish cuneiform marks that extend obliquely downwards from apex are *andalusica*. barely visible or practically non-existent.

46. Genus: **Blepharita** *Hmps.*

ussuriensis. *B. amica* *Tr.* (Vol. 3, p. 66, pl. 15 e). — *ussuriensis* *Shelj.* is a larger race with intensively red-brown forewings and paler rather reddish grey hindwings. This east asiatic race varies considerably from the more western specimens. From the S. Ussuri (Sutshan).

leuconota. **B. leuconota** *H.-S.* (= *stigmatica* *Gn.*) (14 c) was omitted in Main Volume. HAMPSON classified same in the Genus *Anytus*. More recently, for instance ZERNY, places same in the Genus *Blepharita* and my opinion is also that it is better inserted here. Forewings brownish grey with reddish to fuscous hue, a long heavy black basal streak below the cell. Transverse lines dentate with whitish edges on averted sides. Orbicular stigma somewhat obliquely oval. Reniform stigma widely white in outer half. A few sagittate marks before the dentate subterminal line. Marginal area, except for centre, very dusky. Both transverse lines are more or less distinctly conjoined by black along the submedian fold. Hindwings whitish with discal spot, a postmedian band is indicated. Veins shaded in subterminal region, more heavily so in ♀. S. Russia, Armenia, Asia

tresignata. Minor, Syria. — **tresignata** *Mén.* does not appear to vary much from the specimens submitted to me. Perhaps they are slightly more reddish brown, the white of the reniform stigma slightly condensed. Pontus, Taurus to Ferghana. — **immaculata** *Schaus.* reniform stigma is brown and not white. Described from Haifa (Syria).

nasamoni. **B. nasamoni** *Trti.* (14 c). This very closely resembles the preceding species, but in the male sex the pectinations of antennae are distinctly longer and hindwings are a much deeper shade of grey-brown. Forewings with deep brown colouration, having a carmine hue, as for instance *Eumichtis porphyrea* *Esp.* The reniform stigma, which is very prominent is smaller and pure white, the black mark that conjoins claviform stigma and posterior transverse stripe is much wider and forms a rectangle. The other markings are just like those of *leuconota*. The hind tibiae have 2—3 spurs outwardly. From Cyrenaica. This species almost looks exactly like a pale *solieri*, but the latter has no tibial spurs.

Key-Table

for facilitating reference to the species dealt with in Volume 3 and this Supplement.

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			hadjina	55	66
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duosigna	33	50	janthina	63	90
			junctimacula	40	56
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exusta	45	77	lamentanda	40	76
			lazarotensis	24	43
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fallax	33	34	larixia	53	72
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Corrections:

p. 73, line 6 from below: *nyctopis* to be deleted, it was erroneously mentioned twice (compare p. 32).

p. 73, line 4 from below: *seditiosa* should also be deleted, it is synonymous with *incognita* (compare p. 51).

p. 77, line 8 from below: *olivascens* Hmps. to be deleted, it was erroneously enumerated twice (compare p. 75).

Addenda:

p. 50 add after *A. ripae*:

A. haifae Stgr. (Vol. 3, p. 35). Dr. CORTI was in doubt about this species. He seemed to think *haifae*, it was merely a form of the variable *desertorum*.

p. 66 add after *Rh. latens*:

Rh. ignobilis Stgr. (Vol. 3, p. 52). There is a query about this species. According to Dr. CORTI the *ignobilis* type is not to be found in the STAUDINGER collection, although photographs of the types are illustrated in Iris 36, pl. 11, fig. 14! The best will be to classify same next to *latens*, with which STAUDINGER had compared it. — *ignobilis* Hmps. is said to be identical with *asella* Pglr.!

p. 76 add after *Rh. pachnobides*:

Rh. kolymae Herz (Vol. 3, p. 38).

p. 86 add after *P. sajana* Tshetv.:

P. fennoscandica Clayhills. A species that is very similar to *sajana*, but is still more like the subsequent *fennoscandica*. Forewings with ashy grey basal and marginal areas. Central area is dark grey or grey-brown with

distinct central shade. Stigmata and the pale mediana, as is shown in our illustration of *amathusia* (12 h). The posterior transverse line has deeper and longer dentations. A dark shade between veins 4 and 6 in front of the subterminal line. The subapical and anal spot markings of the other allied species are absent in this case. Hindwings grey with grey-brown fringes and faint discal and subterminal lines. Palpi shorter than in *sajana*. Wing expanse: 34—36 mm. N. Finland and northernmost Sweden (Enontekiö and the Fischer peninsular).

p. 88 add after *C. leucographa* Schiff.:

faceta. **C. faceta** Tr. (Vol. 3, p. 38, pl. 8 c, d). This species is more naturally classified here than in the *Rhyacia* group as was done in the Main Volume.

4. Subfamily: **Hadeninae**.

1. Genus: **Barathra** Hbn.

andalusica, *decolorata*. **B. brassicae** L. (Vol. 3, p. 67, pl. 15 e). — In regard to the forms: **andalusica** Stgr. and **decolorata** Stgr. it must be remarked that they occur in all possible transitions along with the type form, both in Italy and central Asia. They may be the predominant forms, but they do not denote exclusive races there. From the series at our disposal ex the collection of SOHN-RETHEL we are illustrating a typical pair (14 a), as the illustration of *andalusica* (as "*straminea*" on pl. 15 f) was not satisfactory. DRAESECKE states also that among typical *brassicae*, that cannot be distinguished from the ordinary european form, he has found some *decolorata* forms in the captures of the STÖTZNER expedition to Szechuan. PETERSEN further advises that he has the latter form also from Lithuania.

2. Genus: **Discestra** Hmps.

vaciva. **D. vaciva** Pglr. (= *eremistis* Pglr. ab. 1 Hmps.) (Vol. 3, p. 67) (14 a). This is not a form of *eremistis* Pglr. as was stated in the Main Volume. It is a genuine species, which differs from *eremistis* by the shorter serrate, fascicularly ciliate antennae of ♂. Those of *eremistis* ♂ are with smooth shaft and short cilia. It is smaller, colouration paler and greyer, not so brownish, the outer central line approximates more closely to the reniform stigma. Hindwings with dark discal spot. From the Ili territory. We are illustrating a cotype from the PÜNGELER collection (Berlin Museum).

strobilacei. **D. strobilacei** Dumont. Forewings pale ochreous rose, costa with brown and white spots. Basal line is only visible at costa and below cell. Also the antemedian line only discernible on costa. Posterior transverse line indistinct, dentate with faintly lighter edges. Subterminal line is wide, indented, sharply dentate on veins, outer edge white, beyond same a row of widely separated lunules. Fringes brownish and chequered. Orbicular stigma small, elliptical or angular, rosy white with delicate black circumscription. Reniform stigma large, grey-brown in lower lobe, with 2 white specks at inner angles, open on top, otherwise with black circumscription. Claviform stigma small, triangular, dark brown with paler centre. Hindwings white with brownish discal spot and marginal band, brown lunules at margin. Fringes white. Wing expanse: 29—35 mm. Tunis (Tozeur) and Algeria (Biskra), in July. — The ova are white with about 60 ridges of which 12 extend to the micropyle. Larva tapering off anteriorly, a protuberance on penultimate segment. In its early stages it is bluish green, when full grown pale yellowish with reddish subdorsal spots and oblique lines extending towards the dorsal. It feeds on *Halocnemum strobilaceum* and hides by day. It is found in May and pupates in a tough sand cocoon.

vassilini. **D. vassilini** O. B.-H. (14 a). Forewings ashy grey, all markings faint. Reniform and claviform stigmata with indistinct surrounds. Orbicular stigma is a pale roundish spot without circumscription. The postmedian line is more distinct, sharply dentate, the subterminal is only faintly indicated. Hindwings grey-white, paler at base. Head and thorax ashy grey. Antennae with short distinct fascicles of cilia, tarsi with black rings. Wing expanse: 31 mm. From 1 ♂ from Elisabethpol (Transcaucasus).

4. Genus: **Scotogramma** Smith.

zermatten- *sis*. **S. trifolii** Rott. (Vol. 3, p. 68, pl. 15 g). I consider specimens from Zermatt to be a genuine race: — **zermattensis** f. *nov.*; when seen in series in juxtaposition to specimens from central Germany, they show a somewhat more elongate build, more oblique outer margin, a softer grey ground colour, smoother scaling. *farkasii*. the latter is also not so irregularly coarse-grained. Transverse lines almost obsolescent. — **farkasii** Tr. (14 a). We are giving a fresh illustration. In Syrmia, Irkutsk and Ussuri it is the predominant race. The paler subterminal area and the light coloured enneiform mark between the orbicular and claviform stigmata to the postmedian line are characteristic of same. — f. **brunnescens** Heydem. is a dark coastal form from Sleswig-Holstein. There is a tendency for the forewings to be obscured by the interspersions of dark grey and grey-brown scales, especially in marginal area before the subterminal line and in centre of wing. In extremely

dark specimens from Amrum, a superficial similarity to *dissimilis* is created by the deep grey-brown forewings and the sharply contrasting yellow-white subterminal line; the marginal area anterior to subterminal line is purer brown, beyond same to margin very dark slate-grey, like the lower half of the reniform stigma. Identical specimens, that therefore represent this same form, are also before me from Bulgaria, only the patch anterior to subterminal line is a more pronounced rusty brown in comparison to the slate-grey marginal area. — subsp. **cinnamomina** *Rothsch.* (14 b). All specimens from Algeria incline to cinnamon rose and are less grey than euro-*cinnamomina*. Generally however, they are also very variable in size as well as in the distinctness of the markings. The larvae feed on *Peganum harmala*, burying themselves deeply in the sand by day; the lateral band is rose, edged on both sides by white and narrower than in *trifolii*. It is fullfed in January and the imagines emerge in March. It has also been found in Cyrenaica and on Sardinia (Aritzo). — **fruticosae** *Dumont.* *fruticosae*. It has yet to be ascertained whether this is the same species. The projecting process on frons is less pronounced, besides it is smaller and colouration is more inclined to ochreous rose. The lines are more delicate and a purer brown-black, hindwings with wide brown marginal band. The larvae feed exclusively on *Salsola fruticosa*, Tunisia (Tozeur).

S. chimaera *Rothsch.* differs from the similar *cinnamomina* by its larger size and narrower wing contour. *chimaera*. It is a bright pale brownish grey with very large round reniform stigma and a blackish submarginal band on forewings. Veins of hindwings are sharply outlined grey-black. Wing expanse: 43 mm. From one ♂ from Ain Sefra (Algeria), captured in March.

S. ghigii *Trti.* From the description this species comes between *sodae* and *stigmosa*. It is somewhat paler *ghigii*. than the former, but a deeper grey than *stigmosa*. Markings are very similar but the orbicular stigma is a large round white spot and the reniform stigma, which otherwise is not clearly marked, has a distinctly sharp white inner edge. Marginal area is scarcely darker than ground colour, with indistinct subterminal line. The small dark preapical spot, which the two above named species possess, is absent here and the two transverse lines are scarcely visible. Claviform stigma small and short. Hindwings white as in *stigmosa* with wide dark marginal band and a central line indicated. Collar without black line. Wing expanse: 30 mm. Derna (Cyrenaica).

S. marmorosa *Bkh.* (Vol. 3, p. 68, pl. 15 h). — **obscura** *Hoffm.* are dusky specimens from Styria, which *obscura*. closely resemble *microdon*. — **dalmatina** *Schwing.* is also close to *microdon*, but smaller, more monotonous in *dalmatina*. colouration, especially the "W" mark of the subterminal line and the sagittate marks are much less distinct. Hindwings darker only in the outer third. Dalmatia.

S. implexa *Hbn.* (Vol. 3, p. 68, pl. 15 k). The illustration is quite unrecognisable. It was the copy of *implexa*. a copy. We are giving (14 b) a good illustration of a specimen from Aflou from the collection of PÜNGELER. The species is widely distributed over Algeria. At Lambessa for instance it is common from April to June. FRITZ WAGNER has also discovered it in Anatolia.

S. schawyra *O. B.-H.* (14 b) should be classified after *dianthi* (Vol. 3, p. 68, pl. 15 h). It is smaller *schawyra*. than the latter; ground colour of forewings grey-brown, the brown claviform stigma contrasting distinctly; orbicular stigma white, reniform stigma brownish with irregular circumscriptions, the two transverse stripes are double; fringes with brown checks. Hindwings impure grey with dark outer margin. Wing expanse: 30 mm. Tannuola mountains: Shawyr, at an altitude of 2500 m, in June.

S. pugnax *Hbn.* is the valid name and replaces *treitschkei* *Bsd.* (Vol. 3, p. 68, pl. 18 a). As the illus- *pugnax*. tration in Main Volume does not truly represent this species, that is like *trifolii* and *marmorosa*, we are giving a better illustration here (14 b). Colouration is more monotonous than *marmorosa*, fringes of hindwings always a brownish hue, whilst in *marmorosa* they are yellowish white. Genitalia differ considerably from *trifolii*. A very widely distributed species; besides occurring in S. France, it is frequently found in Morocco to Algeria and Tunis, where it is found only from September to November; in Algeria it seems to occur almost throughout the year. According to VORBRÖDT it also occurs in Switzerland; in the PÜNGELER collection there are specimens from Spain — among them an aberrative, darker blackish form —, Portugal, Sarafshan and Issyk-Kul! — **petricolor** *Trti.* is described as a local race. It has a purer ashy grey ground colour without *petricolor*. the brownish tone of the type form. From the Apennines of Modena in July.

S. sodae *Rmbr.* (Vol. 3, p. 68, pl. 15 h). We are giving a better illustration here (14 b). — subsp. **rosacea** *rosacea*. *Rothsch.* (14 b) denotes the generally smaller specimens from Algeria and Tunis that have a more rosy hue. It occurs from March to June.

S. salicorniae *Dumont* is as large as *sodae* and similarly marked, but the forewings are white with *salicorniae*. sharper and more distinct markings, reniform stigma is wider and less long, grey-brown, paler whitish at top, darker posteriorly with black circumscription and elliptical at top; orbicular stigma of the same shade as ground with black circumscription, nearer to the reniform stigma than in *sodae*, the ground between same being pure white; claviform stigma is distincter and larger than *sodae*; lines are faint, the posterior one being nearer to reniform stigma with rosy white outer edge. Subterminal line is bright brown with white outer edge. Between veins 6—3 there are three brown sagittate marks. In front of the black-brown marginal line there is a white line, which at apex and anal angle expands to spots. Fringes have brown and white checks. Hindwings pure white with brownish speckles in marginal area and bright brown marginal line; fringes white or pale rose.

raselaini. — **raselaini** *Dumont* has ground colour of rosy hue with larger and darker stigmata, almost black claviform stigma; on margin there are 2 sagittate marks only between veins 4 and 6; in the ♀ hindwings are dusky brown. Tozeur, in April. — The larvae are pale green with indistinct dorsal line and whitish lateral stripes having a red spot in the centre of each segment. True legs are brown. They feed concurrently with those of *sodae* on *Salicornia fruticosa*.

picta. **S. picta** *Trti.* belongs in the group of *pugnax*. Forewings paler yellowish, faintly rosy ground colour with distinct dark brown markings. The small longish orbicular stigma with brown surround, the large reniform stigma with dark outward edge, quadrate, the other markings as in *trifolii-cinnamomina*. The marginal line consists of deep black lunules, fringes in the anterior half of same colour as ground, outwardly with white and brown checks, the two halves intersected by a brown line. Hindwings dark grey-brown with paler postmedian band. Fringes whitish. Tobruk (Cyrenaica). March.

stigmosa. **S. stigmosa** *Christ.* (Vol. 3. p. 68, pl. 15 h). This species occurs in Anatolia according to FRITZ WAGNER and in the Dobrudja (Silver Coast) according to CARADJA. We are illustrating (14 c) a specimen from the latter locality that has very kindly been sent to me for the purpose. In the collection of PÜNGELER there is a specimen from Mauretania with almost grey-white ground colour with faint yellowish tone, that resembles the anatolian specimens in appearance and has very faint markings. Scaling is smoother and the black spot posterior to reniform stigma which is usually prominently black, is in this case quite pale sandy brownish.

brassicina. **S. brassicina** *sp. n.* (14 c). This new species, that was at the time before HAMPSON, was classified by him as *Scotogramma* "near *trifolii*". Outwardly in form and size it is certainly like *B. brassicae*; however the scaling is softer and smoother, ashy grey and more monotonous. Both transverse lines are faintly indicated, the reniform stigma is more concave outwardly, filled with white at lower outer extremity; the subterminal line is characteristic, it extends quite straightly and parallel to margin without a "W" mark; it is of pale yellowish colouration; at margin there are pale yellowish lunules in interstices which have rather darker outer edges. Hindwings dusty grey. From the western Altai. Types in the PÜNGELER collection at the Berlin Museum.

armata. **S. armata** *Stgr.* (Vol. 3, p. 68, pl. 18 a). As the illustration was poor, we are giving a fresh illustration of this species (14 d).

isoloma. **S. isoloma** *Pglr.* (Vol. 3, p. 69, pl. 18 a) cannot be recognised from the illustration. we are therefore again illustrating this species (14 d), which is hitherto only known from the type.

6. Genus: **Polia** *Tr.*

cana. **P. proxima** *Hbn.* (Vol. 3, p. 69, pl. 16 a). The form — **cana** *Er.* from Petropolis is characterised by the pale lilac grey basal and subterminal areas, which are almost devoid of markings. — **nevadensis** *Reisser* (14 d) is larger, never less than 17 mm wing expanse; pale ashy grey, the central area is not dusky; there are rusty red interspersions along the basal streak, between the stigmata and especially in a quadrate patch below the reniform stigma, between the claviform stigma and the posterior transverse line. Generally there are also patches of the same colour at subterminal line. Hindwings pale grey-white. From Sierra Nevada.

helvetica. **P. serratilinea** *Tr.* (Vol. 3, p. 70, pl. 16 c). — **helvetica** *Schaw.* (14 d) is somewhat larger on an average, darker and more olive-grey, the scaling being smoother and less irregular. The subterminal line is generally much fainter, the entire markings being more diffuse and indistinct. In many specimens there is a rather more prominent dark central area. The white or whitish grey paler patches of the austrian specimens are absent, except for the white reniform stigma. Zermatt, Simplon, Martigny. Specimens from the Urals are much darker

heinrichi. and more bluish grey and similar forms occur in Lower Austria (Pottschach). — **heinrichi** *Schaw.* from Digne, is described as a race; it varies more and is paler grey with a light grey outer third of forewings being devoid of markings. The subterminal line and sagittate marks are quite absent, so that there are only the postmedian markings and the stigmata left and these are only slightly more prominent. — **kowatschevi** *Dren.* is a larger ashy grey race from Bulgaria. Colour is without yellowish tone, markings are bold and clear, the double white spot in reniform stigma is distinctly apparent.

spalax. **P. spalax** *Alph.* (Vol. 3, p. 70, pl. 18 b). The illustration was unrecognisable, we are giving a fresh illustration of this nice species (14 d). It is obviously closely related to the preceding species, but nevertheless clearly distinct.

desquamata. **P. desquamata** *Filipj.* is placed by its author next to the two preceding species owing to the analogy in the genitalia. Wing contour as *spalax*, apex slightly more protracted. Forewings grey with very indistinct and diffuse pale grey markings. The anterior transverse line, if visible at all, is somewhat dentate, the posterior line forms an arc in centre, that is bent towards the base. The central area contracts towards the lower half. The dentate subterminal line is paler than the ground colour; stigmata only faintly indicated; fringes whitish with darker dividing line, the tips dusted with darker markings. Hindwings monotonous grey, barely darker than forewings. Wing expanse: 39—44 mm. Pamir, Kashgar.

roborovski. **P. roborovski** *Filipj.* is most closely related to the preceding. Somewhat smaller, forewings more elongate, colouration as in *desquamata*, markings also quite diffuse and indistinct. In place of the central shade, a dark streak along costa; the posterior transverse line is not inclined to the same extent towards the base in

its lower half, subterminal line distincter, margin more boldly undulate, fringes with two dividing lines. Wing expanse: 37—41 mm. N.W. of Kuku-Nor (Nan-shan, Ulan Bulak).

P. conspicua A. B.-H. (14 e). This is a remarkable and larger species, that from superficial resemblance is compared to *Crym. maillardi*. Forewings grey-black somewhat admixed with white. Basal and antemedian transverse lines whitish, posterior line regularly undulate with finely drawn, distinct sharp dentate arcs, that are protracted in points along the veins towards the margin. Subterminal line whitish edged inwardly by black sagittate marks. Orbicular stigma very small, grey with delicate black edge. Reniform stigma as in *maillardi*. Claviform stigma with fine black surround. Anterior to the distinctly white checked fringes, black marginal lunules. Hindwings grey-black with darker marginal and narrow postmedian bands. Fringes with pure white extremities. From 1 ♂ from the Sajan territory. Would possibly be better classified under *Aplecta* next to *tiefi*.

P. peregrina Tr. (Vol. 3, p. 70, pl. 16 c). The illustration in Main Volume is unsatisfactory especially in regard to wing contour. A better illustration is given here (14 e). Said also to occur in Algeria (Tebessa).

P. atlas A. E. Prout is described as resembling *contigua*, but with shorter and wider wing contour and may possibly be related to *dentina*. Thorax grey, intermixed with brown. Forewings pale reddish yellow dusted with grey, more especially posterior to subterminal line. Central area as dark as in *contigua* with a black curved basal streak. Antemedian area darkly shaded. Anterior transverse line double, more oblique than in *contigua*, the inner portion faintly marked, the outer portion black between the veins. Orbicular stigma smaller and more obliquely placed, also reniform stigma is narrower, claviform stigma with distinct black outline and a smaller pale dentiform mark posteriorly. The posterior transverse line is partially treble. Subterminal line as in *contigua* with distinct "W", which however does not extend right to margin. Hindwings fairly heavily dusted with black-brown. From 1 ♀ from Tenfecht (Morocco). It occurs at end of April.

P. contigua Schiff. (Vol. 3, p. 71, pl. 16 d). The name *w-latinum* Hufn. was held by PÜNGELER to refer to *contigua* and denotes specimens with very pale basal and subterminal areas, devoid of markings, the inner marginal area between the two being of the same shade. HAMPSON considered that the name *w-latinum* both of Hufn. and Esp. referred to *genistae*. We merely desire to draw attention to these inconsistencies, in the hope that subsequent investigations will clear the position up. — **dives** Haw. was mentioned in Main Volume as being synonymous. I should prefer to consider it as denoting the form with paler ground colour, having an almost white transverse line posterior to postmedian. — **contiguella** Krul. from Wiatka is a darker greyer form resembling *Polia altaica*. — **decolor** A. B.-H. designates much paler forms, the colour is heavily admixed with grey and also hindwings are much paler. From the Juldus territory. The introduction of the name — **spuleri** Wnukowsky for *amurensis* Spul. is unnecessary. The reason that is given, that there is already an *amurensis* Stgr. of *aliena* in this Genus, is invalid in reference to denominations of races.

P. monotona A. B.-H. (14 e) is close to *altaica* (Vol. 3, p. 71, pl. 16 f.) but smaller. Ground colour dark grey to bluish black with paler and darker shadings, whilst *altaica* is more reddish and wing contour more elongate. Hindwings darker than in *altaica*. Markings are otherwise identical. Wing expanse: 39—40 mm. Sajan territory.

P. adustaeoides Draes. closely resembles *Crino adusta*. Forewings dark brown, both transverse lines double, dark with pale interfilling. Orbicular and reniform stigmata grey-black with delicate black circumscriptions, the latter with a creamy yellow spot at top and below outwardly with 2 white spots. Claviform stigma wide and short, similarly surrounded by black. Costa with black dots, the wide pale postmedian area peppered with dark scales, the indistinct subterminal has a short "W" which does not extend to outer margin and with dark inner shade. There is a black line at base of fringes which are dark with a pale basal line. Hindwings yellow-brown with darker neuration and dark brown margin. Ta-tsien-lu.

P. abikonis Mats. (14 e) appears from the illustration to most closely resemble *genistae*, but has much longer and narrower forewings which are grey with black streak at base below the mediana. The black antemedian line is sharply curved outwards on the submedian fold, having a grey-white inner edge. Cell is widely shaded with black-brown. The large oval orbicular stigma is grey-white with black circumscription, reniform stigma smaller with buff centre, elliptical outwardly. Below the stigmata a wide black patch combines the two transverse lines. The postmedian is extinct, interfilled with whitish, only visible behind the above mentioned patch. The subterminal area below vein 4 is lead-grey. Marginal area posterior to the dentate subterminal line as in *genistae* but much darker. There are black and grey-white lunules at margin. Fringes yellowish with dark central line. At apex there is a large whitish patch. Wing expanse: 45 mm. Honsho (Japan) in April.

P. dissimilis Knoch (Vol. 3, p. 71, pl. 16 f.). — **errata** Gn. is a large paler form that is inclined to buff and which occurs chiefly in the Swiss mountains. — **variegata** Rebel is a most brightly marked form. wings brownish with distinct transverse lines, pale orbicular and reniform stigmata and striking claviform stigma with dark centre. The area posterior to postmedian forms a pale brownish grey band. — **distincta** Heinrich is an aberration in which the lower half of reniform stigma and also often the orbicular stigma are filled with black. Described from Digne.

P. granti Warr. appears to closely resemble *dissimilis*. Forewings reddish brown with a dark brown streak below the mediana. Orbicular stigma is small, elongate, pale, with dark brown surround. The cell

posterior and anterior to same filled with darker brown. The rectangular reniform stigma is scaled with white and has a dark brown surround. Transverse lines are almost extinct, the outer one bulges like a square, posterior to cell, returning to the lower end of reniform stigma and thence vertically to inner margin. Fringes with pale basal line. Hindwings pale brownish with faintly darker discal spot and dentate postmedian. Wing expanse: 38 mm. Azores in May at an altitude of 1000', described from a single ♂.

szetschwana. **P. szetschwana** *Draes.* somewhat resembles *persicariae*, but antennae of ♂ are fascicular and serrate and on each segment there is a pair of long bristles. Forewings black-brown with black transverse lines which converge towards inner margin and become diffuse. The orbicular and reniform stigmata have black surrounds, the former oblique, the latter has a white dot in centre and 2 further dots at lower edge. Claviform stigma large with black circumscription. Anterior to subterminal line there are black cuneiform marks with minute orange dots beyond same. The glossy brownish hindwings paler at base with blackish marginal streaks and brownish fringes that are paler at base. Abdomen pale brownish with 4 black dorsal tufts and coppery anal tuft. Szechuan (Ta-t sien-lu, Omih sien, Wassekou).

ochrorenis. **P. persicariae** *L.* (Vol. 3, p. 72, pl. 16 h, i). — ab. **ochrorensis** *Kard.* has a golden yellow reniform stigma instead of a white one. It is peppered with dark brown scales and surrounded by a fine pale yellow line. Described from the Amur region.

praedita. **P. praedita** *Hbn.* (= *perdita* *A. B.-H.*) (Vol. 3, p. 72, pl. 18 b). The illustration in Main Volume was unrecognisable, we are giving a fresh illustration here (14 e). — **pallida** *A. B.-H.* denotes specimens with distinctly pale yellow tone in place of the more or less pale to dark grey of type form. Described from Kashgar and Yarkend.

schneidei. **P. schneidei** *Stgr.* (Vol. 3, p. 72, pl. 18 b). The illustration was not satisfactory. We are giving a better one here (14 f.); *eversmanni* is very similar, but easily differentiable by the round orbicular stigma and purer white hindwings.

furca. **P. furca** *Ev.* (Vol. 3, p. 72, pl. 18 b). The old illustration was scarcely recognisable and a better one is given here (14 f).

suavis. **P. suavis** *Stgr.* (Vol. 3, p. 73, pl. 18 c). We are giving an illustration (14 f) of a specimen from the PÜNGELER collection.

vidua. **P. vidua** *Stgr.* (Vol. 3, p. 73, pl. 18 c). The old illustration is unrecognisable. We are giving a fresh one here (14 f).

obsoleta. **P. olerac^{ea}** *L.* (Vol. 3, p. 73, pl. 17 a, as "ochracea"). — **obsoleta** *Lamb.* denotes specimens with extinct reniform stigma. — **brunneomaculata** *Heinrich* have dark brown colouration to stigmata instead of orange-yellow. — **variegata** *Aust.* is not quite correctly described in Main Volume. In specimens from Algeria, Tunisia and Morocco, colouration of upperside is lighter, more ochreous grey, the lines paler and purer white, the stigmata more prominent. In S. France (Hyères) transition forms occur. In N. Africa it occurs from March to September.

aestiva. **P. pisi** *L.* (Vol. 3, p. 73, pl. 17 b, c). — **aestiva** *Rothke* is perhaps identical with *splendens*, or possibly a 2nd generation. It is darker brown-red, almost unicolourous with quite extinct markings, only the white anal spot is left. — **rukavaarae** *Hoffm.* should not be deemed identical with the british *scotica* *Tutt* (= *rukavaarae* *Steph.*). We are illustrating (14 f) a cotype from Kuusamo, of which I have before me a few specimens from the collection of SOHN-RETHEL. These are all small and with faint markings, of grey-violet colouration without brownish admixture. Also mentioned as occurring in Esthland. — **saltdalensis** *Strd.* from Norway is more monotonously marked. It is smaller (30 mm), darker brown, without central shade, the indistinct stigmata of same colour as ground. Transverse lines scarcely perceptible, the subterminal line is indistinct and white anal spot very small. From Saltdalen. — subsp. **nyiwonis** *Mats.* from N. Saghalin differs from type form by a striking dark brown central band between the stigmata, that extends from costa to inner margin and a similarly striking uniformly wide white submarginal line, that is just a shade narrower at costa. Ground colour with the deep red hue of the form *scotica* *Tutt*.

luteocinnamomea. **P. softa** *Stgr.* (Vol. 3, p. 73, pl. 18 c) can scarcely be recognised from the old illustration. A good illustration is given here (14 g). — **luteocinnamomea** *Rothsch.* (14 g) is a pale reddish yellow race, markings being prominently reddish brown, especially the claviform stigma and its prolongation to posterior transverse line are distinctly marked. Hindwings somewhat more yellowish, not such a pure white. It occurs from March to October in Algeria (Biskra).

aino. **P. aino** *Mats.* is compared by its author with the form *ochrea* *Tutt* of the subsequent species. Forewings olive-grey, marked with black and white. The double subbasal line is only distinct at costa, both transverse lines double, the anterior one with 2 sharp dentations towards the base on vein 1, the submedian conjoined by a bold black longitudinal streak with postmedian; the large oval orbicular stigma white with grey centre streak, edged with olive yellow. The large round white reniform stigma having black edge only posteriorly. Below the orbicular stigma a large white cuneiform mark with 2 dentations below outwardly. The wide indistinct subterminal line shaded outwardly with olive, there are 2 dark spots beyond same above centre and at anal angle. On the margin a black line that expands in the interstices. Fringes white, admixed with black and olive. The white hindwings are dusky at margin, with obsolete postmedian and dark marginal line. Hokkaido and Honsho (Japan).

P. nana Hufn. (Vol. 3, p. 73, pl. 17 c). — **leucostigma** Haw. is too reddish yellow in the illustration. We are therefore illustrating a very typical specimen from Gran Sasso (14 g). The form occurs frequently in the higher Swiss Alps. — **variegata** Vorbr. is a striking form from Büren, the central area being suffused with red-brown, except for the orbicular stigma and outer area. The yellow basal spot is deep orange. — **schultzi** Rebel is a dark form with indistinct stigmata, striking grey-white outer band and blackish shaded marginal area beyond the subterminal. leuco-stigma.
variegata.
schultzi.

P. glauca Kleem. (Vol. 3, p. 74, pl. 17 d). — **lappo** Dup. besides being of paler and duller colouration, is very small. As synonym we have to add: *frigida* Zett. (teste NORDSTRÖM), which has no connection with *L. dovrensis* with which it was erroneously classified. — **paupercula** Pglr. (14 g) is a large, sleek, very pale olive-brownish form from Mongolia (Aksu). Another central asiatic form is: — **püngeleri** form. n. (14 g) similarly larger but with remarkably wide wings, paler and duller grey, in consequence of which the subterminal area and 2. stigmata appear more unicoloured. Issyk-kul, Alexander mountains. Types in the coll. PÜNGELER in the Berlin Museum. lappo.
pauper-cula.
püngeleri.

P. lamuta Herz (Vol. 3, p. 255) was classified in the Genus *Sympistis* in Main Volume, but is certainly a *Polia*. OBERTHÜR unnecessarily created the Genus: *Anartodes* for it. It is a purer slate-blue than the better known *rangnowi*. Orbicular and reniform stigmata conjoined on mediana by a white streak. Marginal band of hindwings narrower. Siberia (Jakutsk). — **rangnowi** Püng. (14 g). Forewings resemble those of a dark and monotonous *glauca*, but wings are wider. Markings somewhat more distinct than in *lamuta*, claviform stigma black, sometimes with slightly paler centre. Orbicular stigma extinct, reniform stigma enlarged laterally on both sides at lower end, outwardly whitish. Small black triangular spots occur before the indistinct, barely dentate subterminal line. Hindwings white with wide black marginal band, grey-black costa, dark central spot and white fringes. Sweden (Lappland, Lulea) occurring at end of June and early July, flying by day in damp forest clearings. — **tunkinski** O. B.-H. has forewings inclined to greenish grey with dusky central area, the outer two-thirds of mediana white to angle of reniform stigma. The latter has a straight outer edge, outlined in white. Hindwings with marginal band expanding towards anal angle, discal spot bolder in the form of a streak. Sajon mountains, S.W. of Irkutsk, Weiss mountains at an altitude of 2000 m. Occurring in July. lamuta.
rangnowi.
tunkinski.

P. retrusa Püng. (Vol. 3, p. 74). We are illustrating the type (14 h). The STÖTZNER expedition brought back a number of specimens from Szechuan. retrusa.

P. calberlai Stgr. (Vol. 3, p. 74, pl. 17 e). — **eburnea** Sohn-Rethel (14 h) are aberrative specimens with ivory-white ground colour and barely indicated darker markings. Only the space between stigmata forms a dark triangle. Marginal line dark brown and interrupted, fringes pale with dark checks. Hindwings grey-brown with diffuse, wide whitish outer margin. From the Roman Campagna. — **decrepita** Dhl. are transitions, all markings considerably reduced and fainter, so that only indications are left. Ground colour paler, inclined to grey, central area only slightly darker. Occurs everywhere among the main type form in Italy, up to 1200 m altitude. — **teriolensis** Dhl. (14 h) is the race from the Tyrol. It is more robust, with wider wings, more boldly coloured, the central area pronouncedly darker with increased black markings, tone of ground colour greyer. This form especially occurs in the Bolzano district in 2 broods. eburnea.
decrepita.
teriolensis.

P. cappa Hbn. (Vol. 3, p. 74, pl. 17 e). This easily recognisable species, that varies very little, also occurs in May in Algeria (Sidi bel Abbès). cappa.

P. corsica Rmbr. (Vol. 3, p. 74, pl. 17 e) is certainly a genuine species and not a form of *serena*, as has constantly been assumed by various authors, such as HAMPSON, ROTHSCHILD etc. It is much more olive-grey and very constant. The illustration in Main Volume was rather indistinct and we are giving a fresh illustration here (14 h). corsica.

P. serena Schiff. (Vol. 3, p. 74, pl. 17 f). — **obscura** Stgr. is well depicted in Main Volume. It may be called a race in its localities at Zermatt and Bormio, occurring elsewhere as an aberration. — **weissi** form. n. (14 h) denotes a form that resembles *corsica*, but which is always paler and less brightly marked, with much paler hindwings. It occurs probably in all more southerly localities and specimens are before me from Catalonia (Barcelona). obscura.
weissi.

P. spinaciae View. (Vol. 3, p. 75, pl. 17 f). — subsp. **faroulti** Rothsch. (= *africana* Oberth.) has a more reddish brown tone. It occurs almost throughout the year in N. Africa (14 h). faroulti.

P. drenowskii Rbl. should be classified next to *spinaciae*. It is much larger and can be distinguished by a pale oblique patch in centre of forewings and grey-white hindwings having blackish dusky margins. Thorax and forewings ashy grey with whitish admixture. The basal area irrorated with grey-black, outlined by the lobular anterior transverse stripe. Stigmata small, reniform stigma indistinct, claviform stigma quite absent. The white transverse band commences before centre of costa and extends and expands to the fold. There are a few orange-yellow scales in basal and discal areas and around the stigmata. Subterminal line whitish, fringes with dark checks. Wing expanse: 37 mm. Albania (Alibotus) occurring in July. drenowskii.

P. maderae Baker (Vol. 3, p. 75, pl. 18 c). This species has now also been captured at Teneriffe (Orotava) by OTTO STERTZ. maderae.

7. Genus: **Harmodia** Hbn.

Whether one should retain the generic name that was given in 1827 to *compta*, is a matter for individual decision. There would appear to be more justification then to take the name created for *filigramma* by HÜBNER (2 pages previously) viz: *Polymixis*. For my part I should prefer to retain the almost universally known name *Dianthoecia* Bsd. (1834) which seems to me the better name, also from a biological standpoint.

- conjuncta*. *H. rivularis* F. (= *rivosa* Ström., *cucubali* Esp.) (Vol. 3, p. 75, pl. 17 g). — **conjuncta** Klem. denotes the aberration described from Galicia (Rytro) with widely confluent orbicular and reniform stigmata. It of course may occur occasionally anywhere.
- eximia*. **H. eximia** Stgr. (Vol. 3, p. 77, pl. 18 i). It would probably be more correct to place this species next to *rivularis*, as the general impression is not dissimilar, although colouration and shape of lines are different.
- lepida*. **H. lepida** Esp. (= *carpophaga* Bkh., *perplexa* Hbn.) (Vol. 3, p. 76, pl. 17 i) designates the paler, more reddish brown specimens without any white markings in stigmata and transverse stripes, which are only inter-
- capsophila*. filled with a faintly lighter shade of brown. — **capsophila** Bsd. (Vol. 3, p. 76, pl. 18 d) has proved to be no genuine species, there are no differences in genitalia. Ground colour is a deeper sepia brown, stigmata and transverse lines interfilled with purer white or have white edges. As the form was not satisfactorily illustrated, a better illustration is given here (13 b) from a specimen from the Abruzzi. The type form occurs in all possible sorts of transitions to *lepida*, in Germany, Switzerland, France, Spain, Italy and in a somewhat sleeker varying
- sicula*. form in Sardinia and eastwards to the Ili territory and Thian-shan. — **sicula** Drt (13 b) is a somewhat smaller, pure grey form with darker prominent central area from Sicily and occurring in transitions at Capri.
- nevadae*. **H. nevadae** Drt. (13 b) is very similar to *capsophila*, but smaller and more gracefully built, with more, rounded apex to forewings and more delicately and sparsely scaled. Ground colour more greyish, black markings more delicate, the double transverse lines enwidened, the anterior one contingent to orbicular stigma, the posterior one bending towards base at inner margin, where it is widely edged with white. The postmedian area narrower, the subterminal line irregular and extinct, less sharply dentate. The sagittate marks before same small and dull, marginal area paler, heavily peppered with white. On underside of hindwings there is no dentate postmedian line and subterminal band as in *lepida*. Described from Sierra Nevada.
- corrupta*. **H. corrupta** Herz (= *subviolacea* Mats.) (Vol. 3, p. 83) (13 c) is not an *Epia*, nor a form of *christephi*, but a genuine species, in close relationship to *capsophila*. It is more brightly marked than the latter with whitish lilac bluish pale antemedian and postmedian areas. The oval orbicular stigma is situate obliquely. Subterminal line almost without dentations. Central area frequently contrasts by being much darker. The description and illustration of *Polia subviolacea* by MATSUMURA seem to be identical with *corrupta*. It is apparently widely distributed in northern and central Asia, as far as Saghalin.
- syriaca*. **H. syriaca** Osth. (= *osthelderi* Drt.) (13 b) is an interesting new discovery. From outward appearance it resembles a very small *lepida* with bright rusty yellow tone and a much paler patch posterior to postmedian. Specimens however also occur with pure brown colour, which can scarcely be differentiated from *lepida*. The completely different genitalia however indicate that it should actually be placed close to *silenes*. It has like the latter, a transverse projection on lower half of frons, which *lepida* has not. The subterminal line is less sharply dentate, the sagittate marks before same small and pale. N. Syria, Taurus, Marash and recently also found in Europe in Bulgaria. According to information from ZERNY it occurs at Stanimaka and also at Slivno; specimens in the Vienna Museum.
- silenes*. **H. silenes** Hbn. (Vol. 3, p. 83, pl. 20 d). This also cannot be an *Epia*, but from its structure should certainly be placed close to *capsophila*. The illustration in the Main Volume is unrecognisable, a fresh one is given here (13 c). In its typical form it has distinct and clear markings, large stigmata, very sharply dentate
- trisagittata*. subterminal line, the sagittate marks before same being long and pointed and very distinctly marked. — **trisagittata** Rothsch. are darker specimens from Algeria with brighter and more sharply contrasting colouration.
- variegata*. — **variegata** Wgnr. is almost identical, but a shade paler in consequence of white admixture around the stig-
- calcescens*. mata, in marginal and anal regions. Akshehir. — **calcescens** Dhl. are still paler specimens from the central
- sancta*. Italian chalk hills, having grey-white colour with large white stigmata. — **sancta** Stgr. (Vol. 3, p. 82) is not an *Epia*, nor a form of *nisus*, as stated in Main Volume, but a very darkly suffused black-brown form of *silenes*
- cinochrea*. from Sicily and S. Spain. We are illustrating same here (13 c). — **cinochrea** Chrét. is probably only a small pale grey *silenes* form from Gafsa. I have not seen a specimen as yet.
- capsivora*. **H. capsivora** Drt. (13 d) is larger than *lepida*, more sleekly built, outer margin of forewings decidedly wider. It also resembles *bicruris* differing from same by the perfectly circular black-brown orbicular stigma with white circumscription as in *lepida*. The reniform stigma is also as in the latter, but with an additional white central streak in the brown centre. The mediana is not white between the stigmata. Claviform stigma very large and black as in *bicruris*. The subterminal line regularly curved forming a faint "S". There is no "W" mark. It is delicately marked and stands out sharply white. There are 4 anterior black sagittate marks. The

black marginal lunules have delicate white inner edges and beyond there is a fine yellow-white line at base of fringe. Fringes with distinct white checks. Hindwings pale grey-brown, duskier at margin. Antennae with somewhat longer fascicular cilia than in *lepida*. Askhabad.

H. bicruris Hfngl. (Vol. 3, p. 75, pl. 17 h).

H. filigramma Esp. (Vol. 3, p. 76, pl. 18 f) (13 d). There has been some misconception about this species *filigramma*, and an examination of the type, which was first described from the Tyrol, has shown that it belongs to — *xanthocyanea*, a species that is widely distributed in Europe. The form from the Tyrol is larger and paler, with greater admixture of white and boldly marked with orange. — **xanthocyanea** Hbn. (Vol. 3, p. 76, pl. 18 f) (13 e) *xanthocyanea* is the black, dusky form and not a separate species. It is more heavily peppered with black and has almost no orange scales. Widely distributed and extending to Spain, Italy and eastern Europe. — **morosa** Schaw. *morosa* denotes especially dark blackish specimens from Waidbruck. — **estonica** Drt. (13 e) is a nice uniformly blue-grey mottled form, without white or orange and finely marked with black. Hindwings darker black-grey than forewings. From Esthland. — **polymita** Hbn. (13 e) is a pure olive-brown form, almost free of speckles, with sharply marked transverse lines and stigmata. It also has no white scales, but a slight interspersion of orange. Hitherto it has been held to be the genuine *filigramma* and it occurs in Hungary. — **consparscata** Err. (Vol. 3, p. 76, pl. 18 e). This is also a form of *filigramma*, the genitalia being identical. A smaller, more gracefully built subspecies, richly marked with white and of pure ashy grey ground colouration. The illustration of the ♂ in Main Volume is good, that of the ♀ is probably a ♂ of the above mentioned form *polymita*. We are therefore giving an illustration of a very typical specimen of the ♀ here (13 e). It is characteristic of this group of species that the large claviform stigma is approximately quadrate and elliptical at top. *consparscata*.

H. consparcatoides Schaw. (13 e) is a genuine species closely related to the preceding. It is copiously scaled with white on blackish grey ground. Base of costa, stigmata and a spot behind claviform stigma purer white. There is a considerable admixture of orange at the base. The broad, flat blue-white scales that are interspersed on the inner margin towards the base, are very characteristic. Hindwings very pale grey-brown with darker marginal band. The species reminds one somewhat of *nana* Rott. Hitherto only found at Albaracin in Spain. *consparcatoides*.

H. luteocincta Rbr. (Vol. 3, p. 76, pl. 18 f) is not a form of *filigramma*, as assumed in Main Volume, but a genuine and very different species. The type that is described from Spain (13 e) is small, dusky grey-brown, with sparse interspersion of white scales, whilst orange scales are liberally intermixed. Orbicular stigma small, round with a minute, but very clear dark central spot. Claviform stigma filled with black to a greater or lesser degree. It is always small, round and with black circumscription in contrast to *filigramma-xanthocyanea*. The posterior transverse line is especially sharply dentate. The difficulty of distinguishing from *filigramma* is greater in the form found in the Tyrol and probably elsewhere in Switzerland — **persimilis** Drt. (13 f) which is always much larger and of paler colouration. Thereby it closely approximates the genuine tyrolean *filigramma* in appearance. The shape of claviform stigma helps to distinguish the form. — **dubia** Trti. (13 f) is the form of *luteocincta* from the Abruzzi, with identical genitalia, differing distinctly by the wider bluish white central area of forewings and the very heavy admixture of orange. — **schawerdae** Krüger (13 f) is a pale blue-grey, uniformly mottled form with indistinct markings and varying orange admixture, in the typical form from Karst in Istria this is absent, in specimens from Corsica and from the Caucasus often prominent. — **krügeri** Trti. (13 f) from Sicily is a very pale, light bluish white but similar form, that is more distinctly marked with delicate black and rich orange scaling in antemedian and postmedian areas and in the surrounds to stigmata. — **tristis** Drt. (13 f) in contrast to same, is a very dark form, suffused with black, almost devoid of admixture of white scales and either without or with very sparse orange scaling. It corresponds approximately to the *morosa* form of *xanthocyanea* and occurs at Elisabethpol. — **karagaia** A. B.-H. (13 f) forms a transition to the red central asiatic form. Markings blackish and fairly diffuse, orange scaling profuse, most striking is a very large orange patch at base of forewings. From Karagai-tao. — **ignicola** Warr. (Vol. 3, p. 76, pl. 18 f) and the extreme form of same, completely covered by orange — **intensa** Warr. (Vol. 3, p. 76, pl. 18 f) are not held to be separate species, but belong to the group of forms of *luteocincta*. The illustrations in the Main Volume are quite satisfactory. *luteocincta*, *persimilis*, *dubia*, *schawerdae*, *krügeri*, *tristis*, *karagaia*, *ignicola*, *intensa*.

H. wehrlii Drt. (13 g) forms a sort of transition between *luteocincta* and the subsequent species. It differs from the former by its smaller size and pure black colouration especially in basal and postmedian areas, devoid of all orange. It is sharply and boldly marked, especially the transverse lines with their long dentations, the points of the posterior dentate line conjoined by a second line. In the pale central area a further sharply dentate central line is visible. Hindwings dark grey-brown. The genitalia differ from both allied species. Sierra Nevada (Spain). *wehrlii*.

H. melanochroa Stgr. (Vol. 3, p. 76) (13 g) is also a genuine species. It is much smaller than *luteocincta*, markings more indistinct and diffuse, colouration darker and duller, orange admixture varies but is generally only sparse. Basal area generally dark and separated from the somewhat paler central area by an outwardly convex arc. Transverse lines quite indistinct. The chief localities are Pontus, Amasia, and Asia Minor. — *melanochroa*.

castriota. **castriota** Rbl. & Zerny is the same species as *melanochroa* and somewhat larger with more contrasting colour-
humilis. ation, inclined to blue-grey and with paler central area. An examination of the cotype of — **humilis** Chr.
 (Vol. 3, p. 77 under *compta*) from Borshom, has established, that it is also a *melanochroa* form and not belonging
 to *compta*, which scarcely varies from name type; *humilis* therefore, having been described later, should be
weissi. dealt with as a synonym of *melanochroa*. — *castriota* was described from Albania. — **weissi** f. n. (13 g) from
 the Caucasus are larger, colouration more monotonous, blue-grey with faintly paler central area, a few speci-
vulcanica. mens with rather richer orange admixture. — **vulcanica** Trti (13 g) is a further form of same, described from
 Sicily. It is completely sooty black-brown, markings obscure and without admixture of orange. In contrast
aureomixta. to same, specimens from further East towards central Asia become paler: — **aureomixta** Drt. (13 g). Ground
 colour is much paler, almost whitish and owing to the interspersions of orange scales, it has a faintly yellowish
 tone. Especially the central area is very pale, being almost pure white. In antemedian region and around
 stigmata, as well as before the subterminal line, profuse golden yellow scales. Ferghana, Semiretshje.

duercki. **H. duercki** Drt. (13 h) is one of the prettiest species of this group. It is marked very like the illustration
 of the *castriota* form from the Caucasus, but is very striking by the salmon pink ground colour and interspersions
 of orange scales, especially around stigmata and in a submedian streak in basal area. The antemedian area
 is occupied by a wide grey-black band, the transverse lines being indistinctly visible in paler ground colour.
 Orbicular stigma has a delicate black circumscription and dull grey centre. Reniform stigma similarly. Clavi-
 form stigma can be discerned as a small black circumscribed adjunct of the dark antemedian band. The post-
 median is distinct, black, dentate. Marginal area also peppered with black having an indistinct pale subter-
 minal line. Hindwings yellow-grey, widely blackish at margin. Fringes of both wings ochreous. The ♀♀ are
funerea. often heavily mottled with black: — **funerea** f. n. I have a jet-black specimen before me from Mr. SCHWINGEN-
 SCHUSS. Captured at 2300—2700 m altitude in June in the High Atlas from Sidi Chamarouche to Tachdirt.

heringi. **H. heringi** Drt. (13 h). Resembles *duercki* and looks like a *melanochroa* that is suffused with salmon
 pink. It is larger than the latter, ochreous rose, antemedian and marginal area admixed with black and grey-
 blue. Similarly the inner marginal third of central area is shaded with grey-black. Orbicular stigma small
 and round, reniform stigma with dainty black circumscription, claviform stigma large and black in leaden grey
 ground. The pale ochreous reddish central area extends beyond postmedian towards anal angle. Fringes
 faintly checked with paler checks. Hindwings dark grey-brown, fringes grey-white with yellowish red base
 line. Ferghana. On account of the extraordinary genitalia, this species is not closely related to any other.

lypra. **H. lypra** Pglr. (Vol. 3, p. 76, pl. 18 e) is being illustrated afresh here (13 d), as the illustration in Main
 Volume, was a copy from HAMPSON which was not successful. The shape of the genitalia induces one to classify
 the species near to *luteocincta*. The type is a ♀, pale grey-yellow with darker discal area, black transverse lines
 and a black longitudinal streak from claviform stigma to posterior transverse line. Stigmata pale without
 darker centres and sharply outlined. Hindwings darker than forewings. It is doubtful whether the ♂ belongs
 to *lypra* or represents a new species. It is larger, pale greyish white, similarly marked but with much larger
 stigmata, reniform stigma with grey centre, claviform stigma especially large, dark grey with black circum-
 scription. Hindwings pale grey with central and subterminal lines.

staudingeri. **H. staudingeri** Wgnr. (13 h). This nice species is, according to the genitalia, closely related to *melano-
 chroa*, in spite of its very different appearance. It looks very like *gueneei* but is generally somewhat larger,
 wings more elongate with more oblique margin and more protruding and sharply pointed forewings. Ground
 colour is black-brown with white, somewhat mottled central area, that usually has a yellowish hue. Trans-
 verse and subterminal lines indistinct white. It differs further from *gueneei* by its predominantly black thorax.
 Hindwings are purer white with darker marginal band. The illustration of *armeriae* in the Main Volume (pl. 18 h)
 definitely figures a *staudingeri*. It is a copy of an illustration by HAMPSON of a specimen lent by PÜNGELER,
 who had considered it to be a *gueneei*. WARREN incorrectly held *armeriae* and *gueneei* to be synonymous. Asia
 Minor (Akshehir), Syria, Taurus (Marash).

pfeifferi. **H. pfeifferi** Drt. (13 h) closely resembles the preceding species, but is structurally very different. Wing
 contour wider and bolder. Forewings of deeper black colouration, markings only just discernible. Basal area
 with slight admixture of orange. Transverse lines simple, not double, central area pure white with large quadrate
 orbicular stigma, elliptical at top with inner and outer black and orange circumscriptions. In contrast to the
 preceding species the reniform stigma is on black ground and faintly dusted with orange. Subterminal line
 indicated by a few white and orange scales. Fringes checked whitish. Hindwings almost pure white with black
 marginal band. Antennae with shorter cilia and without a longer single bristle. Lebanon.

pečirkai. **H. caesia** Schiff. (Vol. 3, p. 77, pl. 18 h). Besides the forms mentioned in Main Volume there are the
 following: — ab. **pečirkai** Joukl. an aberration scarcely worthy of denomination. It has no transverse lines
 and subterminal line, is pale blue-grey with trapeziform whitish central area. Hindwings with wide dark brown
*xantho-
 phoba*. marginal band. Described from Gratz. — **xanthophoba** Schaw. a white and grey-blue form, devoid of any trace

of orange-yellow; from Vucijabara, but also occurring elsewhere. — **maritima** *Trti. & Verity* apparently closely resembles *xanthophoba* and may even be identical; in this latter eventuality it would have right of priority. Markings are bright with blue-grey and an almost pure white central area without any admixture of yellow. the stigmata with wide white circumscriptions, also the anterior transverse line being pure white. Terme (Valdieri). — **abruzzensis** *f. n.* (13 h) occurs in the southern Abruzzi (Pescocostanzo). This form is similar but much paler and predominantly whitish with very pale blue-grey and without any orange. — **nevadensis** *f. n.* (13 h) denotes the race from the Sierra Nevada which is strikingly small and of compact form. Markings very distinct of very dark blue-grey and admixed with whitish with a few orange scales. — **urumovi** *Dren.* from Bulgaria is probably a very similar race. Similarly small but however quite without the bluish grey colouration, instead it is blackish with distinctly outlined markings. Hindwings are much paler and not yellowish, abdomen dorsally grey, not yellowish. — **atlantis** *f. n.* (13 i) is a very fine form from the High Atlas Mountains; all the whitish patches are here of a beautiful rosy yellow interspersed with orange scales, in contrast to which the pure blue ground colour is in pretty relief. — **salmonea** *f. n.* (13 i) which only appears to occur in the ♀ sex has a deep salmon rose colouration. — **clara** *Stgr.* (13 i) is illustrated from a specimen obtained in the northern Lebanon (Becharre) and now in the Museum at Vienna.

H. hyrcana *Drt.* (= musculina *Hmps.* pro parte, nec *Stgr.*) (Vol. 3, p. 87, pl. 20 g) somewhat resembles the form *clara* of the preceding species but it is smaller and more richly marked. Body and forewings pale yellowish white sparsely speckled with black-grey, partially dusted with orange; subbasally there is a wide blue-grey band, the transverse lines are black; in the pale central area a few orange scales, stigmata and central line faintly marked; marginal area grey-black with faint dentate subterminal line with a dark inner edge; fringes checked with grey. Hindwings brownish grey with dark postmedian band and dark margin. The illustration from the Main Volume cited above is an unrecognisable copy from HAMPSON. We are giving a fresh illustration here (13 i). Syria, Kurdistan, Persia.

H. albimacula *Bkh.* (Vol. 3, p. 77, pl. 18 g) is generally a very constant species which varies little. Specimens from widely separated localities show little variation and no races are indicated. Only one aberration is described — **ochrea** *Zweigelt*, in which the white colouration is replaced by ochreous yellow.

H. nana *Rott.* (Vol. 3, p. 77, pl. 18 g). Transitions to the form *ochrea* appear to occur especially frequently in Austria. In these the white colouration occasionally has a yellowish tone. No other forms have been described beyond those mentioned in the Main Volume.

H. cailinita *sp. n.* (13 l). A nice new species classified next to *compta* and having rich blue-grey ground colour with whitish to ochreous reddish central area; in the antemedian area there is a wide reddish orange streak below the cell; transverse lines double; the orbicular stigma white, quadrate, circumscribed by black, elliptical above and below; reniform stigma with blue-grey centre, the cell between the stigmata is brown-grey; central line dentate, anterior to same a large roundish brown claviform stigma. Postmedian area brown-grey, only admixed with blue-grey at inner margin, with whitish subterminal line. Hindwings pale brownish grey being widely darker at margin and with the customary pale patch at anal angle. Issyk-kul, Djarkent.

H. compta *Schiff.* (Vol. 3, p. 77, pl. 18 h) is much more variable than *nana*; specimens with a considerable admixture of ochreous yellow and even orange-yellow, especially in basal area and at the subterminal line, are not of rare occurrence, especially in Austria. The following aberrations have now been denominated: — **defasciata** *Hannemann* from a specimen without the white central band, only the orbicular stigma is filled with white, from Erfurt. — **albicincta** *Metschl* having costa and inner margin edged with white in basal area, from Regensburg. — **grisescens** *Trti.* is less black-brown and a more greyish form with admixture of blue-grey, from the Apennines of Modena; it forms a transition to — **galactina** *Trti.* (13 k) from Sicily, which has the same colouration but additionally has an extension of the white colour, the white middle band is expanded especially at the inner margin and there is much more extensive white on the thorax and in the basal area of the forewings. Further the marginal area has many more white scales.

H. stenoptera *Rbl.* (13 i) slightly resembles the preceding species and through its deeper slate blue-grey colouration forms a transition to *armeriae*. It is however strikingly different from both by the longer and narrower formation of the wings and the materially longer abdomen. Central band is not pure white, but impure yellowish. Hindwings only faintly paler towards the base. Underside is a more impure white and anal tuft is mixed with yellowish. From Angora.

H. armeriae *Bsd.* (Vol. 2, p. 77, pl. 18 h). The illustration, as already mentioned under *staudingeri*, depicts that species and has nothing to do with *armeriae*. We are therefore illustrating the species here (13 i). It is not much larger than *compta* and ground colouration is a peculiar blackish slate, central band is somewhat mottled and a mealy white and in same are situate the large white stigmata. In the marginal area there are traces of a subterminal line indicated by whitish patches. The thorax is almost completely white. The area of distribution towards the East cannot as yet be definitely indicated. It appears to be distributed over the larger part of western Asia commencing in Dalmatia. — **adriana** *Schaw.* has a peculiar paler dull slaty blue ground colour of forewings and the white central band has a faint yellowish hue. From the coastland of Croatia

stauderi. (Zengg). — **stauderi** Schaw. (13 i) is a still paler form of dull grey tone with considerably more whitish, but *püngeleri*. with distinct sharply dentate transverse lines. — **püngeleri** Schaw. (13 k) denotes an albinotic, yellowish specimen which is almost devoid of markings. These two latter forms also from Zengg (Croatia).

gueneei. **H. gueneei** Stgr. (13 k) looks superficially like a very large *armeriae* and is closely related to same by the very similar genital organs; *gueneei* has rather less extended wing contour, a rounder apex and a less oblique margin than *staudingeri* although also very similar; the central band is wider than in *staudingeri* and purer white; altogether all the white marks are more extensive and more distinct. The thorax also is a purer white and consequently distinguishable immediately in all cases of doubt from *staudingeri*. According to F. WAGNER there is only one genuine *gueneei* in the collection of STAUDINGER, which must therefore be taken as the type. The two further specimens are *armeriae*. On the other hand in the PÜNGELER collection in the Berlin Museum under the denomination *gueneei* there is a *staudingeri*. This can be immediately discerned by the more extended wings with oblique margin, the completely black thorax and the narrower yellowish central area. This pretty and large species has hitherto been found from Dalmatia to Asia Minor (Akshehir; Taurus, Marash). The area of distribution cannot be stated definitely as yet owing to the fact that this species is often mistaken for other species.

magnolii. **D. magnolii** Bsd. (Vol. 3, p. 76, pl. 18 e). The illustrations are good. Specimens from Asia Minor as well as from Algeria are more heavily scaled with blackish and therefore appear darker; the same is the case with freshly emerged specimens in the Tyrol. — **flavofasciata** f. n. (13 d) is a nice form from Sicily with ante- and postmedian bands a pale ochreous yellow; types in the collection of DANNEHL, Munich.

tephroleuca. **H. tephroleuca** Bsd. (= *nigra* Rätz.) (Vol. 3, p. 77, pl. 18 f, g). The illustration was not satisfactory being much too yellowish green. A better illustration from a specimen from the Tyrol is given here (13 k). The illustration shows the original specimen of BOISDUVAL obtained at Chamonix. VORBRÖDT asserts that freshly emerged specimens in the Bernese Oberland have a much more pale buff and light grey suffused ground colour. The localities in Asia Minor mentioned in the Main Volume probably refer to the following species.

asiatica. **H. asiatica** Wgnr. is very similar to the preceding species and was described as a race of same. However the differences in the genitalia are too great and as the palpi are also considerably shorter than in *tephroleuca* this cannot be merely a subspecies. It is fairly large and boldly built with darker blackish grey ground colour. Further the markings are clear and distinct, black and white, especially posterior to the claviform stigma with a sharply marked white spot. Fringes of hindwings brownish to the extremity whilst in *tephroleuca* they are white. Underside of hindwings with distinct central spot and arched band. Described from Akshehir and also occurring in Amasia. The specimens mentioned in the Main Volume as having been obtained at Pontus and Ala-Tau probably belong here. — **reisseri** f. n. (13 k) is a smaller but otherwise very similar form occurring in Spain and with identical genitalia; ground colour somewhat less blackish, more inclined towards olive brown, the black and white markings somewhat less contrasting, the white spot posterior to claviform stigma is absent. From Sierra Nevada and Aragon.

schwingenschussi. **H. schwingenschussi** sp. n. (13 l). So far only one ♀ of this species has been captured. It is clearly very close to *tephroleuca*, markings being almost identical, they seem however slightly brighter owing to the intermixture of blue-grey and yellowish tones. The antemedian part of the inner margin and the subterminal area are somewhat more bluish whilst the basal and discal areas are rather more yellowish. The orbicular stigma and a quadrate cuneiform mark beyond same are very pale yellowish white. The same yellowish white shade occurs posterior to the unusually large claviform stigma. The orbicular stigma is only punctiform with brownish centre. The most characteristic mark is the sharply dentate oblique black central line. The postmedian line does not recede so sharply below the cell, the anal space posterior to same is not nearly so pale whitish as in *tephroleuca*, and scarcely paler than the ground colour. Subterminal line is of the same formation as in *tephroleuca* and there is a long black sagittate mark anterior to same at anal angle. Hindwings much paler than in *tephroleuca* in the basal area. Only one ♀ from Tachdirt in the High Atlas (Morocco) at an altitude of 2300 to 2700 m; type in the collection of SCHWINGENSCHUSS.

tephrochrysea. **H. tephrochrysea** sp. n. (13 k) differs from *tephroleuca* by the yellow somewhat reddish toned ground colour which is more or less peppered with brown; the black subbasal streaks are slightly finer, the double transverse stripes resemble those of *tephroleuca*; stigmata small, pale, and almost without centres, a pale yellowish spot occurs posterior to claviform stigma. Subterminal line golden yellow, small black triangles on margin. Hindwings dark grey with striking yellowish white fringes and without any trace of a transverse line but with the usual pale spot at anal angle. Semiretshje.

pumila. **H. pumila** Stgr. (Vol. 3, p. 77, pl. 18 g). The illustration is a bad copy of a figure by HAMPSON. We are giving a better reproduction here (13 l). This small species is very variable, the whitish ground colour is peppered with brown and dusted varyingly with yellowish brown or reddish brown, occasionally blackish brown, whilst some specimens are completely suffused with black. A dark oblique band in the cell area, between the orbicular stigma and the antemedian line, is characteristic. It passes over the claviform stigma. There are a few black sagittate marks anterior to subterminal line. This small species has wide wings and scarcely any closer relationship with the other *Dianthoecides*.

H. filipjevi *sp. n.* (13 l) is a small species that differs considerably from the preceding and possibly has *filipjevi*. a relationship with the subsequent species. Forewings pale yellowish white dusted with dull grey, most densely so in the basal and central areas and before the subterminal line; the stigmata are pale and only the reniform stigma is slightly dusted with grey. The 2 dentate grey transverse lines are simple and with a pale edge on averted sides (ground colour is not dusted). The subterminal line is similar, it is situated very close to the margin, there are very faint rusty yellowish streaks along the cell and submedian fold; fringes are faintly checked. Hindwings grey-brown, somewhat darker than forewings and with white fringes. Pamir (Chorog).

H. musculina *Stgr.* is not identical with the species mentioned by WARREN in the Main Volume on *musculina*. p. 87, pl. 20 g, which we have previously reclassified as *hyrcana*. STAUDINGER classified his *musculina* close to *caesia* which certainly was incorrect. It is a small species, faintly ashy grey with dark black-grey discal area, which is enclosed by faint transverse lines; basal area is slightly darker; the stigmata paler, orbicular stigma inclined to be oval, reniform stigma with darker centre; marginal area faintly darker without a distinct subterminal line; fringes pale impure yellowish with dark dividing line, in the outer half there are dusky checks. Hindwings uniform grey-black with yellowish fringes, which are faintly divided by dark patches. Described from Malatia. — **mayeri** *Wgnr.* (13 l) is possibly the same, but may be a local form with plain fringes; discal area is deeper black which however may be due to the freshness of the specimen that has recently been described. The only known type of *musculina* is now nearly 50 years old; *mayeri* is described from Akshehir in Asia Minor. It will only be possible to take a decision in regard to these 2 forms when fresh material is available.

H. luteago *Schiff.* (Vol. 3, p. 70, pl. 16 b) cannot be separated from *Harmodia* if one takes the build *luteago*. and biology into consideration. Already in 1919 EDELSTEN and PIERCE have proved that *luteago* and *barrettii* were 2 separate species. Recently WIGHTMAN and RAYWARD have checked this assertion with the same result and finally TAMS has discovered from examination of the genitalia of *andalusica* that this latter species is identical with *barrettii*. It is difficult to classify the dark *luteago* forms: *argillacea* can scarcely be separated from *barrettii*. Generally one can say that the *luteago* forms are all more or less pronounced ochreous to orange yellow and brown, whilst the *andalusica* forms have a more or less olive-grey or olive-brown colouration. — **nigricans** *Wgnr.* is a striking form with heavy blackish shading and almost completely black hindwings; it is *nigricans*. a local race from S. Dalmatia. — **olbiena** *Hb.-G.* on the other hand is a striking pale unicoloured form. Specimens from Algeria closely approach *argillacea*; the pale yellowish colouration with wide brown central area of "Y" shape, which is interrupted by the pale stigmata, is characteristic for specimens from the Lebanon. *olbiena*.

H. andalusica *Stgr.* (13 b) is separable from *luteago* by the genitalia (*andalusica* has a short hook with *andalusica*. a wide base, *luteago* a long thin spine on penis) it is very difficult to describe the difference in words; *andalusica* is generally inclined to olive-brown or olive-grey ground colour and if it is yellowish then it is a more buff-yellow, whilst in the spanish name type it is inclined to be glossy bronze. A further characteristic, which however is not absolutely constant, is a black longitudinal streak along the under edge of the claviform stigma to the postmedian line. This is absent in the great majority of *luteago* specimens although occasionally it does actually occur. — **gedrensis** *Schaw.* is an especially dark form from the E. Pyrenees which however has a bright admixture of yellowish tones forming a nice contrast. — **dignensis** *Turner* from Digne is inclined to be a dull orange *dignensis*. colour on forewings which is heavily suffused with grey, both stigmata are reddish yellow, the "Y" shape mark in central area is dark brown with a similar triangular patch between the stigmata. — **pallida** *Zerny* is a dull *pallida*. yellowish grey-brown form with indistinct markings from Albarracin. — subsp. **barrettii** *Dbld.* is an english *barrettii*. island form of which a number have been kindly sent to me by Mr. WIGHTMAN. It is extraordinarily variable and differs chiefly from mainland forms by the increased interspersation of whitish scales: consequently the glossy bronze colour of the latter is not so apparent. — **ficklini** *Tutt* is a form from Cornwall which has a *ficklini*. greater suffusion of olive or bluish grey shades, whilst **lowei** *Tutt* is more ochreous yellowish reminding one *lowei*. somewhat of *E. ochroleuca*. From Guernsey. Specimens however also occur which are a deeper blackish or with and without the pale cuneiform mark. The size varies considerably. According to WIGHTMAN's investigations *andalusica* also occurs in Amasia! The larvae live in the root of *Silene maritima*, but probably also in *inflata* and *Spergularia rupestris*.

H. literata *F. d. W.* (Vol. 3, p. 70, pl. 16 a) is a genuine species closely related to *luteago* but larger than *literata*. same. The illustration shows too much contrast in the colour, it should be a more monotonous buff-yellow olive-grey, the wing contour should be slightly more elongated, the apex more protracted.

H. zerny *sp. n.* (13 b) is relatively close to *literata*. It is of the same size but with wider wings and less *zernyi*. protracted apex, resembling somewhat the illustration of *suffusa* (Vol. 3, pl. 16 b). The genitalia are also very similar but distinctly different. Forewings with whitish ground densely peppered with brown and marked as in *literata*; transverse lines are distinctly double, from the subbasal 2 distinct parallel black streaks below the mediana, the cell and the large claviform stigma filled with dark black-brown; orbicular stigma and the very large pale cuneiform mark below same are almost whitish, reniform stigma very wide, quadrate, both

stigmata elliptical above and below; subterminal area paler brown, the anal space posterior to the postmedian line, which is interfilled with white, is palest; the marginal area behind the irregular subterminal line is dusky grey-brown; it is separated from the pale fringe base line by a regular undulate black marginal line. Hindwings pale grey-brown narrowly dusky at margin, darker in ♀. At Tachdirt in the High Atlas (Morocco), at an altitude of 2300—2700 m, captured in July by SCHWINGENSCHUSS and ZERNY. Type in the collection of SCHWINGENSCHUSS.

8. Genus: **Aplecta** Guen.

- scotaea*. *A. advena* Schiff. (Vol. 3, p. 78, pl. 19 a). — **scotaea** Pglr. i. l. ? is a very remarkable, large dusky aberration which is quite grey-black; in consequence of the dense dark suffusion the markings are scarcely discernible. Zermatt.
- tiefi*. **A. tiefi** Pglr. (14 i). This nice species is close to *advena*, it is larger and with wider wings, the colouration is inclined to be blackish grey, the markings are quite similar to the preceding species. The large reniform stigma is rather whiter on the outer edge, the claviform stigma is larger with distinct black circumscription, the subterminal line has not such a dark inner edge. Hindwings with bolder discal spot, more distinct arched line and darker fringes. Antennae without short cilia but with short stiff pectinations. Saján Mountains; Lake Baikal (Kultuk); Malchan Mountains.
- malchani*. **A. malchani** sp. n. (14 i) is fairly close to *tiefi*, but has considerably coarser black scaling so that the markings are much less distinct. Only the posterior undulate dentate transverse line is more distinct than in *tiefi*, under the costa this has a whitish outer edge; orbicular stigma is small and round scarcely paler than the ground colour and with black surround; reniform stigma is also smaller than in *tiefi*, it is more angulated and at lower edge scarcely traverses the lower angle of cell, whilst in *tiefi* this is the case; it has a white surround and in the middle of the grey-black centre there is a further whitish streak. Claviform stigma small; subterminal line blackish with paler outer edge. The uniformly grey-brown hindwings are very characteristic, besides a discal crescent, there are 2 dark grey-brown shaded bands in postmedian and subterminal areas. There is a grey-brown marginal line before the fringes which are pale brownish grey with dark dividing line. Antennae of ♂ have shorter pectinations than in *tiefi*, they end more abruptly and are denser so that the space between 2 pectinations is at the most half as wide as the single pectination; in *tiefi* they are much more widely separated, so that the interval is double as wide as the single pectination. S.W. Transbaikal (Malchan Mountains). Described from 2 ♂♂ from types in the collection of BANG-HAAS.
- heterogyna*. **A. heterogyna** O. B.-H. is classified by the author after *tincta* although this species makes a very different impression. Forewings brownish white heavily dusted with white behind the reniform stigma; orbicular and claviform stigmata only indicated by faint lines, reniform stigma with white centre, the transverse lines only faintly indicated; a sharply marked dark brown subterminal line is very striking, it proceeds in a faintly concave arc towards the margin from below apex to the anal angle, outlining the brown marginal area. In the latter and immediately before the margin there is a fine white dentate line. Hindwings yellowish. The illustration indicates a further shaded darker subterminal line as also a discal spot and central line. Collar and anal tuft pale yellow. If, as the author indicates, the tibiae actually have spurs, this may be an *Agrotidae*. There however only the Genus *Ala* has hairy eyes and therefore is certainly not related to the present species. Wing expanse: 43 mm. S. Ussuri, Sutshansk.
- thompsoni*. *A. nebulosa* Hufn. (Vol. 3, p. 78, pl. 19 c, d). — ab. **thompsoni** Arkle (14 i) from the Delamere Forest in Cheshire has glossy deep black forewings with striking white fringes and minute white streaks subterminally on the costa. To what degree this form is identical with *robsoni* Collins or — **plumbosa** Mansbridge, remains to be carefully elucidated. The latter is also a blackish english form.
- enodata*. **A. enodata** A. B.-H. has great similarity with *nebulosa* and the arrangement of the markings and colouration of the wings are more or less identical. Forewings are somewhat narrower, transverse lines less prominent, the 3 stigmata are irregularly outlined with black and are smaller; colouration is less admixed with black, the small black sagittate marks at the subterminal line are more distinct on the costa, the black anal streak is more boldly black, the fringes are more pointedly scalloped. The dark marginal band on hindwings is narrower, the basal area paler. Wing expanse: 45—50 mm. From Karagai-tao.
- vesperugo*. **A. vesperugo** Ev. was omitted from the Main Volume. The types are represented by 2 worn ♀♀ from Irkutsk. FILIPJEV describes the species from a fresh pair captured at Dseja (Jakutsk), on 30th June and 11th July. His description reads: head, antennae, palpi and thorax grey; ♂ antennae bipectinated, dentations not as long as the width of the shaft with dense cilia, ♀ antennae filiform. Abdomen grey with paler interspersions, the 3 first segments with black tufts; legs grey scarcely ringed. Forewings uniformly blue-grey with indistinct transverse lines, the anterior line commences in the first third of the costa and is heavily dentated. The posterior line is distinctly double, undulate, parallel to the margin; reniform stigma very large distinctly prominent with

white outer edge and sharply outlined by black, slightly constricted in centre; orbicular stigma half as large and less prominent; claviform stigma very distinct short and wide, heavily outlined by black. Hindwings monotonous grey, faintly shaded with brownish, discal spot and postmedian line appearing through from under-side. Wing expanse: 48 and 54 mm.

A. vespertilio *sp. n.* (14 i) seems to me to be very close to the preceding species. A large, wide winged *vespertilio*. species, thorax and forewings dove-grey with blackish interspersions; anterior transverse line only visible in traces, similarly the orbicular stigma, which is scarcely apparent; reniform stigma is large, incurved outwardly and with white circumscription being elongated at lower edge in a point on the mediana to the orbicular stigma, where it is sharply outlined by black; claviform stigma unusually large, a shade paler than the ground colour and circumscribed by black; the posterior transverse line is almost absent, instead of the subterminal line there are a few blackish sagittate marks; on the margin in the interstices between the veins are black triangles; the grey fringes are intersected somewhat paler at termination of veins. Hindwings pale brownish grey with 2 darker shaded lines posterior to the discal spot and quite similar to those of *malchani*. Irkutsk, Tunkinski Mountains. There are 7 ♂♂ in the collection of O. BANG-HAAS.

9. Genus: **Pachetra** *Guen.*

P. fulminea *F.* (Vol. 3, p. 79, pl. 19 e, f). A very large number of colour variations and forms have been described: — **brunnea** *Rbl.* has almost unicolourous brown forewings, generally with orbicular and reni- *brunnea*. form stigmata with white surrounds. — **diluta** *Rbl.* is much paler than type form with grey-white forewings and *diluta*. indistinct dark markings, only the claviform stigmata is dark, generally also the marginal area posterior to subterminal line. — **quadrinaculata** *Kujau* has a large quadrate deep black mark below the 2 stigmata in *quadri-* the generally paler ground colour. — **melaena** *Hartwg.* is a melanic, almost completely black suffused aber- *maculata*. *melaena*. ration in which the white or paler markings on forewings are absent, also the 6 stigmata are suffused by shade and are only discernible through their deeper black circumscriptions. Captured near Brunswick. — **conjuncta** *Hirschke* shows the orbicular and reniform stigmata conjoined by a white streak along the mediana. — **hilaris** *Wrli.* has the subterminal line and the "W" widely and prominently marked by white, claviform stigma in- *conjuncta*. *hilaris*. distinct, reniform and orbicular stigmata with wide white surrounds. Also the basal transverse line is inter-filled with white and the sagittate marks are indistinct and reduced. Thurgovia. The sharply white marked — **bombycina** *Ev.* has meanwhile been discovered by F. WAGNER also in Asia Minor. — ab. **nigra** *Wgnr.* is a *nigra*. monotonous dark blackish slate-grey form of this race. — **britannica** *Turner* is a very pale race, the white being *britannica*. predominant so that the darker and pale tones form a sharper contrast. Especially the veins are prominently white. England. A further race — **syriensis** *Strd.* is described, with white hindwings and only the veins are *syriensis*. brown. From Syria.

10. Genus: **Hadena** *Schrk.*

H. texturata *Alph.* (Vol. 3, p. 79, pl. 19 g). As synonyms to this species we have to add: — *kitti* *Schaw.* *texturata*. This interesting species is now also known from Hungary, Austria (from around Linz; Ennstal and S. Tyrol) and from the Engadine. It therefore also belongs to the European fauna.

11. Genus: **Tholera** *Hbn.*

Th. popularis *F.* (Vol. 3, p. 80, pl. 19 h). — subsp. **nervosa** *Zerny* is smaller than the usual central *nervosa*. European specimens, it has fine white markings which contrast distinctly, all veins are prominently white, also the subterminal line which is more heavily dentate. The large orbicular stigma fills out the entire width of the cell, the claviform stigma is shorter. Hindwings with distinct white veins in the darker marginal area. Aragon und Portugal. Specimens from the southern Abruzzi form a transition to same.

Th. cespitis *F.* (Vol. 3, p. 80, pl. 19 h). — **carboniosa** *Trti.* is a deeply black-brown race, the velvety *carboniosa*. black transverse lines stand out from the dusky ground colour of forewings and only the subterminal line and surrounds to the stigmata are finely yellowish white. From the Monte-Rosa territory (Macugnaga). Specimens from the southern Abruzzi are similarly dusky but have rather more yellowish white markings. — **desyllesi** *Bsd.* (Vol. 3, p. 185) is, according to an examination of the types, the pale reddish brown form of *cespitis* and therefore the name replaces *ferruginea* *Höfn.* (not *Hofm.*) which becomes synonymous and to which also — *decolor* *Sohn* should be added as a further synonym. The name has nothing to do with *dumerilii*! (14 i).

12. Genus: **Thargelia** *Pgbr.*

Th. gigantea *Rbl.* (14 k). A large species described from the Sinai Peninsular and also before me from *gigantea*. Egypt. It is very similar to *Odontelia megastigma*; a large species with relatively narrow wings. Forewings marked with pale grey on very pale whitish yellow ground; a long fine black basal streak extends into the

elongate claviform stigma; only the finely black outer edge of the very elongated orbicular stigma is visible, the upper half of the reniform stigma is not discernible, just the lower half can be discerned on veins 3 and 4 in 2 long lobes which have darker grey edges; between the finely black veins elongated grey sagittate marks proceed from the margin. Hindwings whitish.

sitiens. **Th. sitiens** *Pglr.* (14 k) is a smaller species that looks almost exactly like *Odont. margiana* but the antennae have longer pectinations and anatomically it belongs to *Thargelia* on account of the stunted proboscis and the absence of the spurs on the fore tibiae. Forewings ashy grey with whitish and partially somewhat brownish admixture. There are no transverse lines and only the whitish reniform stigma with its dark surround is distinct, whilst the claviform stigma is faintly indicated. In the marginal area there are dark sagittate marks in the interstices. Fringes grey, faintly checked. Hindwings whitish, sparsely dusted with grey and somewhat darkened at margin. Syr-Daria, captured in September.

13. Genus: **Odontelia** *Hmps.*

margiana. **O. margiana** *Pglr.* (Vol. 3, p. 80). We are giving an illustration of a specimen in the PÜNGELER collection (14 k).

14. Genus: **Hypobarathra** *Hmps.*

icterias. **H. icterias** *Ev.* (Vol. 3, p. 81, pl. 20 b). The old illustration was very unsatisfactory and we are replacing same by a better illustration (14 k) of a specimen from Sutshansk (Ussuri).

15. Genus: **Conisania** *Hmps.*

pomerana. **C. leineri** *Frr.* (Vol. 3, p. 81, pl. 21 a). — **pomerana** *Schulz* also occurs as far as the coast of Samland in E. Prussia. The illustration was poor, we are giving a good illustration of a nice form (14 k) and also of the *pölli.* 2 other forms *bovina* and *furcata* (14 l). — subsp. **pölli** *Stertz* (14 l) varies to such a degree, that possibly it is a separate genuine species; the ground colour is frequently a greyish inclining towards olive, markings are much more precisely distinct, both transverse lines prominent, 3 to 4 black sagittate marks before the subterminal line. Hindwings somewhat paler dusky grey than forewings, with pale fringes. Ground colour of the larva is a brighter green than that of *leineri*, it also feeds on *Artemisia*. From Vintshgovia. It should be mentioned here that it was not the late Mr. PÖLL that discovered this insect but the keen collector ASTFÄLLER in Merano, who gave the first specimens he found to PÖLL who passed them on as if he himself had obtained them.

renati. **C. renati** *Obth.* (Vol. 3, p. 83, pl. 20 d). As has meanwhile been ascertained this species belongs anatomically to the *Conisania* and should be classified nearest to *leineri*. Meanwhile this rare species has been found to be more widely distributed than at first assumed. It has now been frequently discovered in the Alpes Maritimes, southwards to Albarracin. We are giving a fresh illustration (14 l).

ostrogovichii. **C. ostrogovichii** *Drt.* (14 l) is also to be classified in the group of *leineri*. Forewings pale grey-yellow, thorax rather more grey. Forewings with simple black transverse lines, the anterior one forming 3 arcs, the posterior one sharply dentate; orbicular stigma small, round, pale and with black surround, reniform stigma large, whitish, with heavy black circumscription, the lower lobes of both pure white and protracted inwardly and outwardly; from the inner angle a central shade extends to the inner margin. Subterminal line somewhat paler, dentate, and anteriorly to same obsolete sagittate marks. Hindwings brownish, darker than forewings, duskier on margin, inner margin and fringes whitish. From Rumania (Cluj). According to FILIPJEV it also occurs at Dagestan (Ciscaucasia) and specimens are to be found in the Leningrad Museum. He states further that according to the genitalia it is identical with *leineri*.

16. Genus: **Saragossa** *Stgr.*

seeboldi. **S. seeboldi** *Stgr.* (Vol. 3, p. 81). We are glad to be able to illustrate this interesting species from a *arabum.* typical spanish specimen (14 l). — **arabum** *Culot* is the N. African race, it is rather darker olive-brown in ground colour so that the markings stand out more prominently white. Markings however are somewhat constricted and hindwings are not such a pure white but have a faint yellowish tone.

17. Genus: **Onychestra** *Hmps.*

siccanorum. **O. siccanorum** *Stgr.* (Vol. 3, p. 82, pl. 19 g). The illustration is unsatisfactory and is replaced by a better one (15 a).

bergi. **O. bergi** *Kusnezow.* Similar to *siccanorum*; body and forewings ochreous grey admixed with brown; both transverse lines are double with pale interfilling, the posterior one indistinct with 2 to 3 sharp curves at lower extremity. Orbicular stigma pale with brown centre; reniform stigma large with sharp black lower edge and somewhat brownish centre; the wide claviform stigma is indistinct. The delicate subterminal line extends parallel to the margin and is ochreous white with a pale spot at apex; fringes grey. Hindwings whitish grey

with dark veins, subterminal shade and white fringes. Length of forewings: 15 mm. From the desert around the Lake Aral.

18. Genus: **Pronotestra** *Hmps.*

The name of this Genus was misprinted in the Main Volume as "*Protonestra*", which is rectified here.

P. silenides *Stgr.* (Vol. 3, p. 82, pl. 20 c). The illustration is not recognisable and a better figure is given *silenides*. here (13 d). — **pallidior** *Strd.* (= *Hmps.* ab. 1) is a paler form which occurs everywhere among the type form. *pallidior*.

19. Genus: **Aglossestra** *Hmps.*

A. mariae-ludovicae *D. Luc.* (15 a). Forewings quite pale reddish brown sparsely bestrewn with brown, *mariae-ludovicae*. with dentate blackish transverse lines that have wide whitish edges on averted sides. Orbicular stigma large, pale with black surround; reniform stigma of same colour as the ground with white inner edge and with grey centre in lower half; claviform stigma large, dull blackish. Subterminal line white, sharply dentate, with inner dark shade and dull sagittate marks anteriorly. Fringes faintly checked. Hindwings white with greater or less slight grey suffusion and darker marginal band that is sometimes only visible subterminally. Algeria.

20. Genus: **Epia** *Hbn.*

E. picturata *Alph.* (Vol. 3, p. 82, pl. 20 c). The species extends westwards as far as the Urals. The *picturata*. illustration was not satisfactory and is replaced by a better one (15 a).

E. irregularis *Hfngl.* (Vol. 3, p. 82, pl. 21 a). The illustration of this pretty species is much too dark *irregularis*. and consequently unrecognisable. It is replaced by a better illustration here (15 a). — **hellwegeri** *Schaw.* differs *hellwegeri*. from the type in that the whitish stigmata are as yellow brown as the ground colour. Described from Waidbruck.

E. aberrans *Ev.* (Vol. 3, p. 82, pl. 20 c). The description was not quite correct, only the area between *aberrans*. the anterior transverse line and the subterminal line is rather more suffused with brown, basal and marginal areas are yellow-white like the thorax.

E. nisus *Germ.* (Vol. 3, p. 82, pl. 21 a) is being again illustrated more satisfactorily here (13 c), the illus- *nisus*. tration in the Main Volume would not enable one to differentiate the species from *H. lepida*. — *sancta* *Stgr.* should be deleted here. It is a form of *H. silenes* (vide p. 102).

E. mendax *Stgr.* (Vol. 3, p. 82, pl. 20 c) is not recognisable from the illustration. A fresh figure is given *mendax*. here (15 a).

E. mendica *Stgr.* (Vol. 3, p. 82, pl. 20 c). The illustration is also not satisfactory, a fresh figure of the *mendica*. species is given of a specimen from Marash (15 a).

E. renati *Obth.* (Vol. 3, p. 83, pl. 20 d) should be removed from here as it belongs in the Genus *Conisania* (vide p. 110).

E. silenes *Hbn.* (Vol. 3, p. 83, pl. 20 d) should also be removed from here and classified with *Harmodia* (vide p. 102).

E. christophi *Mschlr.* (Vol. 3, p. 83, pl. 20 d) is a genuine *Epia* which has no connection with *corrupta christophi*. *Herz* (vide under *Harmodia* p. 102). The illustration in the Main Volume was not satisfactory and we are giving a fresh illustration of this species here (13 c).

21. Genus: **Cardepia** *Hmps.*

C. afra *Baker* (Vol. 3, p. 83). We are able to give an illustration of this little known species from a *afra*. perfect specimen from Egypt in the collection of ANDRES (15 a). Possibly it should not be classified in the Genus *Cardepia* as it would appear to be more suitably placed under *Scotogramma*, but in no case should it be connected with *stigmosa*. It is easily distinguishable by the curiously coloured hindwings.

C. irrisor *Ersch.* (Vol. 3, p. 83, pl. 21 b). We have to mention the form from the high plateaux of Algeria — subsp. **mauretanica** *Rothsch.* (15 b) which has rather shorter and more rounded forewings with browner or *mauretanica*. more reddish ground colour with less whitish intermixture, markings of forewings are less distinct and hindwings are much less white. *deserticola* should be deleted as a form.

C. deserticola *Hmps.* (= *affinis Rothsch.*) (Vol. 3, p. 83) (15 b) is a genuine species and not a form of *deserticola*. *irrisor*. It is certainly exceedingly similar to the preceding species but can be differentiated by the shape of the projecting process on the frons; *irrisor* has a round flat process without a turned over edge, whilst *deser-*

ticola has a reniform stunted process on frons that is excised below and that projects more prominently having a turned over edge. It is widely distributed from Syria to Algeria and occurs from March to May.

22. Genus: **Trichoclea** Grt.

egena. *T. albicolon* Sepp. (Vol. 3, p. 83, pl. 21 b). — **egena** Led. as well as the following: — **arida** Led. should probably be removed and considered genuine species. We are illustrating both (15 b); *egena* is distributed fairly widely westwards and occurs already at Sarepta in the Caucasus and Taurus, in the Steppes of Kirgisen and as far as Djarkent.

T. simplex Stgr. (Vol. 3, p. 84, pl. 21 d).

amydra. **T. amydra** Pglr. (15 b) should be removed from the list of synonyms and classified as a genuine species. It is more daintily built, much paler, with smoother scales and more delicate and diffuse markings.

sociabilis. **T. sociabilis** Grasl. (Vol. 3, p. 84, pl. 20 d) is not recognisable from the illustration in Main Volume. On plate 15 b we are giving a good illustration of this rare insect.

demotica. **T. demotica** Pglr. (Vol. 3, p. 84, pl. 20 d). Just as the previous species, this one also is not recognisable from the illustration in Main Volume. This is rectified by a fresh figure here (15 c).

23. Genus: **Manobia** Stgr.

sachalinensis. **M. sachalinensis** Mats. is closely related to *xena*, but is smaller and has a darker grey ground colour with brown markings; the subbasal line is distinct, the anterior transverse line is wide and intersected and subdivided into 4 spots by the paler veins; the large pale stigmata are situate in the brown central area as in *xena*; subterminal line blackish brown, undulate with pale outer edge and posterior to same, the margin is narrowly blackish brown. Fringes are grey with dark central line. Hindwings dark grey, paler at base, the dark fringes have white terminations. Wing expanse: 31—33 mm. Saghalin. Only ♀♀ are known.

grisea. **M. grisea** Btlr. (Vol. 3, p. 84, pl. 20 e). Besides being found in Japan this is now also said to occur in S. Saghalin.

24. Genus: **Lasianobia** Hmps.

lauta. **L. lauta** Pglr. (Vol. 3, p. 84). We are illustrating a specimen ex the collection of PÜNGELER (15 e).

levicula. **L. levicula** Pglr. (15 c) is so close to *decreta* that it may be a local form of same, but it is decidedly paler and with more monotonous colouration. Forewings pale brownish with faint markings and short black basal streak. Transverse lines are indistinct, the inner one is undulate forming a sharp angle towards the base on the mediana, the subterminal line is not discernible. Orbicular stigma is large, circular, extending in 2 points at lower edge, thus forming a spot. Reniform stigma is also large and similarly is extended to a two-pointed spot at the lower edge. Claviform stigma is absent. Hindwings pale grey-brown with blackish marginal line and pale fringes. Wing expanse: 32 mm. Lob-nor.

25. Genus: **Lasiestra** Hmps.

dovrensis. **L. dovrensis** Wocke (Vol. 3, p. 85, pl. 21 c). *fumida* Graes., which had been described as an *Anarta*, is a synonym. It is also known to occur in Lapland and is distributed eastwards as far as Sajan, Irkutsk.

stereotypa. **L. stereotypa** Kozh. should be classified after *montana* Leech (Vol. 3, p. 84, pl. 20 e) and belongs in the same group. Body and forewings dark yellow-grey, the latter with indistinct black markings; stigmata very indistinct and only the reniform stigma has a narrow pale edge, claviform stigma is absent. Transverse lines are double, but very indistinct. A narrow black central shade in the middle, which in its upper part adumbrates the inner part of the reniform stigma. The pale yellow-white marginal line is distinct. The subterminal line is scarcely undulate and only relatively distinct in the ♀. Hindwings yellow-grey with darker marginal band. This dusky faintly marked species reminds one most of dark specimens of *Scot. trifolii*. Wing expanse: 34—36 mm. Minussinsk, steppes of Kalish occurring in June.

persa. **L. persa** Alph. (Vol. 3, p. 85, pl. 20 e). The illustration is unrecognisable. We are giving a fresh figure (15 c) of a specimen in the PÜNGELER collection.

L. meraca Pglr. (Vol. 3, p. 85, pl. 21 c). For this species the following name should be used on the grounds of priority: **extrita** Stgr. The illustration on pl. 34 d is a poor one, that on pl. 21 c is rather better. The species is not a *Cucullianae*.

26. Genus: **Lasionycta** *Auriv.*

L. hospita A. B.-H. (= *ardua* *Filipjev*) (15 e). Forewings grey-black with interspersions of whitish hairs and scales. The slightly dentate transverse lines blackish, not very pronounced, the discal area between them only somewhat darker. A black longitudinal streak on the submedian nervure more or less distinctly conjoins the two lines. Frequently the space below same to the inner margin is somewhat heavily darkened. Subterminal line faintly indicated by a row of dots. Stigmata can only just be discerned. Fringes with blackish checks. Hindwings grey-white with faintly darker wide marginal band, discal spot and central line posterior to same. Sajon territory. *hospita*.

27. Genus: **Hadula** *Stgr.*

H. tancrei Graes. (Vol. 3, p. 36, pl. 21 d). The illustration was much too dark grey-brown, the species is much more whitish. We are able to give a good illustration of — **graeseri** *Pglr.* (15 e). *graeseri*.

H. nefasta *Pglr.* (15 d) most resembles *turpis*, but it has less acutely pointed, more brownish and distinctly marked forewings. Markings are pale buff and grey-black. The inner transverse line is almost vertical, the outer one extends first sharply outwards, but from reniform stigma it proceeds almost parallel to outer margin down to the inner margin. The brownish white stigmata are large, orbicular round, reniform with dark circumscription. The pale subterminal line has an inner blackish edge. Hindwings grey-black with dark central band. Posterior to same the wing is paler and fringes are light. Lob-nor. *nefasta*.

H. sabulorum *Alph.* (Vol. 3, p. 86, pl. 21 e). The illustration is much too grey-brown and markings too varied. A better reproduction is made here (15 d). — **distincta** *Stgr.* A good illustration is being given (15 d). — **expressa** (*O. B.-H.* i. l.) *n. f.* (15 d) is a much paler, somewhat smaller and more distinctly marked form from the Karagai-tao (central Asia). *sabulorum*. *distincta*. *expressa*.

H. orbona A. B.-H. (15 d) is classified by the author after *sabulorum*. Forewings whitish ochreous yellow with rusty brown mottlings and admixture. Markings rusty brown. Inner transverse line punctiform, the outer one sharply dentate with pale outer edge. Between same, an irregular red-brown central shade. Stigmata practically indiscernible, also subterminal line practically invisible. Hindwings paler than forewings. Karagai-tao. *orbona*.

H. contempta *Pglr.* (15 e). Forewings grey-white with brownish tinge. Blackish double subbasal. Anterior transverse line double, the posterior is simple with white outer edge. Stigmata with dark surrounds, the large reniform whitish at lower outer angle. The whitish subterminal line is sharply dentate with darker inner edge, generally it is dissolved into separate small spots. The dark marginal line expands at extremities of veins. Fringes yellow-grey with darker dividing line and checked tips. Hindwings darker grey than forewings with whitish fringes and pale streaked inner marginal area. In the ♀ the subterminal line is more complete. E. Turkestan, Aksu. *contempta*.

H. stoliczкана *Moore* (15 e) was omitted from Main Volume. It is sleeker than *sabulorum*, with oblique outer margin to forewings, darker grey-brown, more smoothly scaled and somewhat less distinctly marked. Both transverse lines are practically extinct. Subterminal line is somewhat more undulate and more clearly visible than in *sabulorum*. Hindwings darker grey-brown. East Turkestan (Chamil Hami). *stoliczкана*.

H. zetina *Stgr.* (Vol. 3, p. 177) (15 e) is neither a form of *zeta*, nor is it a *Crymodes*, but should be inserted here after *insolita*. Forewings are more elongate and narrower with more oblique outer margin, dusted with yellowish grey-brown. The very straight subterminal line is characteristic; it consists of fine dentiform marks with pale yellowish outer edges. Other markings as in *insolita*. Hindwings however darker than same, fringes inclined to whitish only outwardly, not nearly such a pure white as in *insolita*. Aksu, Altyn-Tag. As a synonym we must mention *impia* *Pglr.* (Vol. 3, p. 86, pl. 20 f) which should therefore be deleted as a separate species. *zetina*.

H. griseola *Rothsch.* (15 e) is a remarkable species, that resembles a *Thargelia*. It is very large, with narrow wings, yellowish white ground colour and grey and delicate black markings, veins finely black. Basal streak and the 3 stigmata as in *Th. gigantea*. Posterior to cell there is a pale oblique streak to margin below apex. In place of subterminal line there are blackish sagittate streaks, that extend to margin in paler grey. Hindwings white with veins outlined in brownish grey. — ab. **rosacea** *Rothsch.* is a reddish suffused form. Algeria, occurring in February and March. (S. Biskra, Mraier, Ouargla, El Golea, Touggurt). *griseola*. *rosacea*.

H. pulverata A. B.-H. (= *cinnamomeogrisea* *Rothsch.*) (15 c) somewhat resembles *sabulorum*. Forewings grey-white with yellowish admixture, finely mottled with black, transverse lines faint. The small orbicular stigma is white, as also is the reniform which has blackish striations in centre. Claviform stigma has a distinct black circumscription. The subterminal line consists of whitish spots and is irregular with very indistinct "W". On margin there are small black lunules; fringes whitish. Hindwings somewhat paler with grey-black, narrow, straight marginal band and blackish discal spot. Tunisia and Algeria. *pulverata*.

29. Genus: **Hyssia** Guen.

H. cavernosa Ev. (Vol. 3, p. 87, pl. 21 f). The illustration was poor, a better one is given here (15 f).
dilutior. — ab. **dilutior** Schwing. has forewings completely suffused with silvery grey.

H. musculina Stgr. (Vol. 3, p. 87, pl. 20 g) should be removed from here. Vide *Harmodia hyrcana* Drt. and *musculina* Stgr. p. 105 and 106.

30. Genus: **Eriopygodes** Hmps.

E. imbecilla F. (Vol. 3, p. 87, pl. 21 g). — ab. **immaculata** Schaw. described from the Seiseralp. Stigmata of forewings extinct. — **rufa** Hoffm. & Klos a red-brown form. — **obscura** Hoffm. & Klos is a dark brown form, median shade obsolete; described from Styria. — **pallens** Lenz is a very pale yellow-grey form of ♂. — **fasciata** Lenz denotes specimens of both sexes that have very dark median and marginal areas.

32. Genus: **Xylomania** Hmps.

X. conspicillaris L. (Vol. 3, p. 88, pl. 21 g). — **grisea** Trautm. is a uniformly ashy grey form. — **volandi** Philippis is probably the same, perhaps somewhat paler, when it might be termed albinic. Forewings pale grey without white or black markings; on the other hand on hindwings the veins are more prominent and the discal spot also is deeper black than in type form. — **anatolica** M. Hering is an almost plain pure grey race, without brownish tinge or distinct markings. Thorax with dark grey hairs. From Angora.

33. Genus: **Perigrapha** Led.

P. circumducta Led. (Vol. 3, p. 89, pl. 21 h). Specimens from E. Turkestan and also from the Amur
pallescent. are entitled to the name: — **pallescent** f. n. (15 f). Here the median area is quite pale olive brownish, basal area, markings of stigmata and marginal area are sometimes almost yellow-white. Type in the collection of
irkuta. PÜNGELER in the Museum of Berlin. We are illustrating one of these specimens. — **irkuta** f. n. (18 g) has wider wings; basal and marginal areas, as well as the very large stigmata are pale sandy brown. The median area between same is exceedingly deep black-brown with a chestnut brown sheen. Thorax similarly pale sandy brownish. From Irkutsk, Sajon.

P. duktana sp. n. (18 g) is a small species with very elongate wings. Apex of forewings much more protracted. Thorax, basal and inner marginal part of median area bluish ashy grey. The rest of median area is pale reddish brown. Stigmata also the same shape as those of *circumducta* and the entire marginal area is pale sandy buff. Stigmata are contingent and very narrowly circumscribed by black. Subbasally 2 oblique black streaks below the median. Both transverse lines indistinct, double, faintly interfilled with paler shade. Subterminal line very faint and merely indicated by a few sparse black scales, shaded inwardly below costa with black-brown. On the margin a delicate dark undulate line. Fringes sandy brownish. Hindwings grey-brown with whitish fringes. From a ♂ from Duktan (Sarafshan); Type in the collection of BANG-HAAS.

P. i-cinctum Schiff. (Vol. 3, p. 89, pl. 21 i). — ab. **brunnea** Schwing. a richer chocolate brown colour-
pallida. ation. — ab. **pallida** Schwing. especially pale grey specimens. In — **unimaculata** Schwing. the black spot between the stigmata is absent except for 1 or 2 black dots, so that a large grey patch with black edge, is created. —
unimaculata. **centralasiae** Bartel is much smaller, more reddish in tone, markings richer, brighter and of greater contrast,
centralasiae. especially in subterminal and marginal areas. Askhabad. An illustration of the form is given (15 f).

P. hönei Pglr. (= *sugitanii* Mats.) (15 f) somewhat resembles *circumducta* but is larger, with more elongate extended wings. A deep triangular black spot with fine yellow-white upper edge below the median in basal area. Stigmata very like those of *circumducta*, but browner and only slightly enwidened below the median. The upper end of the reniform stigma is extended upwards and outwards. The posterior transverse line is quite extinct, so that the brown median area is not so sharply outlined outwardly. Subterminal line is a very fine, yellow-white line and there are dull brown dots before same below costa, in centre and at anal angle. Hindwings dark grey-brown. Japan, Saghalin, Ussuri (Sutshansk).

P. cilissa Pglr. (15 f) varies considerably. Forewings blue-grey, about as in *Antitype dubia*. Stigmata very large, orbicular stigma with a round dot below as in *i-cinctum*, but it is not contingent to the reniform stigma and is paler grey with a tinge of yellowish. Subterminal area is similar, subterminal line with small dark grey, triangular streak-like marks in upper half. Hindwings grey-brown with whitish fringes and faintly indicated central line. From the Cilician Taurus. Also occurring in Asia Minor (Akshehir).

33a. Genus: **Penecephila** *Hmps.*

Proboscis developed, palpi obliquely porrect with longer hairs on lower edge; frons smooth, eyes hairy; ♀ antennae ciliate. Thorax hairy and with hair-like scales; on prothorax a large pointed, triangular tuft; metathorax with bushy tuft of hair. A row of tufts dorsally on abdomen. Forewings with rectangular apex and a regularly rounded, scalloped margin. Tibiae without spurs. Only 1 species:

P. essoni *Hmps.* This remarkable species, of which only a single specimen is known, reminds one of *essoni*. *Panolis flammea*. Thorax grey admixed with brown, abdomen inclined to rosy red, tufts brown and grey. Forewings rosy red dusted with brown with grey-white costa. Veins and marginal area grey-white, the latter with rosy red patches in the interstices. Anterior transverse line is black at upper extremity, inclined to brown and indistinct at inner margin. The small black claviform stigma has grey centre. Orbicular and reniform stigmata are grey-white with black circumscriptions, the former is small and round, the latter inclined to be quadrate, with traces of a median line between them. Posterior transverse line is blackish, dentate. Subterminal line whitish with dentations on veins 3 and 4 and a dark shade before same. Hindwings yellowish white with subterminal shade and short streaks along the veins in place of the posterior transverse line. Fringes reddish yellow. Wing expanse: 40 mm. Scotland, Aberdeen, only one ♀ captured at sugar on a fir tree; possibly an exotic species that had been imported by chance.

34. Genus: **Monima** *Hbn.*

M. rorida *Friv.* (Vol. 3, p. 89, pl. 22 a). This species has meanwhile been found to occur in central Italy *rorida*. and in the french Maritime Alps. — **caliginosa** *Trti.* appears to be a genuine race from Sardinia. Specimens *caliginosa*. from there are darker smoky brown with darker and more distinct markings and spots.

M. jezoensis *Mats.* (15 g). Forewings pale grey-brown. Subbasal line indicated by 2 black dots. A 3rd *jezoensis*. dot posteriorly above mediana. Transverse lines black with white edges on averted sides. Stigmata grey with white circumscriptions, orbicular stigma somewhat conical, elliptical at top, the cell before and behind same reddish brown. The pale subterminal line has a dark outer shade, a black-brown patch before same at costa. The apical veins are whitish, peppered with black. Hindwings dark grey, somewhat paler towards base. Japan (Hokkaido).

M. gothica *L.* (Vol. 3, p. 89, pl. 22 b). Besides the colour varieties already named we have: — **obscura** *obscura*. *Lenz* with dusky brown ground colour, — **reducta** *Lenz* orbicular stigma with no black on inner edge, the horse-shoe mark only half retained, — **nictitans** *Lenz* stigmata are exceedingly prominent owing to their pale edges, *nictitans*. — **obsolescens** *Lenz* all markings with the exception of the black elements in median area are more or less extinct, — **taeniata** *Lenz* with striking pale band inside of subterminal line before the margin. — **conflua** *Kieffer* *obso-* has all black markings in median area confluent forming one patch. — **circumscripta** *Hasebroek* is probably *lascens*. the same aberration, the black circumscribes the entire stigmata; if identical the name *conflua* would have *taeniata*. priority. — **expuncta** *Delahaye* is an ashy grey mottled form without transverse lines, only the double subterminal line is retained. The black patch is absent except for a small triangular spot, all other markings are *conflua*. almost obsolete; obviously this is a form that exceeds *obsolescens*. — **aurifera** *Delahaye* is a nice reddish yellow *circum-* to golden yellow form, brightly marked and dusted with violet. — A hybrid has been bred of *gothica* ♀ and *expuncta*. *stabilis* ♂. Of these 2 ♂♂ are in the collection of PÜNGELER. The moths can scarcely be differentiated from very dark *gothica*. They were bred at Neuwaldegg in Lower Austria. *aurifera*.

M. munda *Esp.* (Vol. 3, p. 90, pl. 22 e). Here also there are analogous forms to those of the preceding species. — **obsolescens** *Lenz* with extinct markings, — **fasciata** *Lenz* with darker median band. — **kammeli** *Rbl.* *obsolescens*. is a partially melanic form from Innsbruck. Forewings are blackish brown, the markings are however finely *fasciata*. outlined in delicate ochreous yellow. Hindwings darker blackish grey. *kammeli*.

M. miniosa *F.* (Vol. 3, p. 91, pl. 22 e). — **rufa** *Dhl.* is a unicoloured dark yellow-red form i. e. without *rufa*. darker median area. Described from Terlan in the S. Tyrol.

M. stabilis *View.* (Vol. 3, p. 91, pl. 22 e). — **cruda** *Lenz* has sharply prominent transverse lines at the *cruda*. edges of median area. — **fasciata** *Lenz* is a form with dark median band and reniform stigma filled with the *fasciata*. same colour. — **nictitans** *Lenz* with pale circumscriptions to stigmata and a similar line before margin. — *nictitans*. **obsolescens** *Lenz* all markings more or less merged in ground colour. — **tangens** *Heinr.* the two stigmata are *obso-* contingent, without however becoming confluent. — **extincta** *Heinr.* surrounds of stigmata are the same shade *lascens*. as ground, not paler; occurring only among red specimens. — **flavilinea** *Heinr.* has subterminal line widely *tangens*. yellow and without paler inner edge. — **dalmatica** *Wgnr.* is a race with red hue; from Dalmatia. Also the hind- *extincta*. wings have red fringes. — **violacea** *Car.* has a rich reddish violet marginal area. Rumania. *flavilinea*. *dalmatica*. *violacea*

- constabilis*. **M. constabilis** Wilem. i. l. ? (15 g). There is a pair under this name in the PÜNGELER collection. They are from Yokohama and resemble the reddish form of *stabilis*, with more sharply marked and paler subterminal line on forewings. The main difference from *stabilis* is in the stigmata. Orbicular is small and round, with pale circumscription and about as large as in the much smaller *cruda*. Reniform is narrower and more crooked than in *stabilis*.
- aoyamensis*. **M. aoyamensis** Mats. somewhat resembles the *japonica* form of *stabilis*, but has serrate antennae. Forewings grey-brown, sparsely peppered with black and with reddish brown transverse lines having paler edges on averted sides. The oval orbicular stigma is delicately circumscribed by yellowish and is indistinct. The large reniform stigma similarly with blackish centre in lower lobe. Between the two there is an angulated median line. Subterminal line is yellowish with dark shade on inner edge. Hindwings dark grey with obsolete discal spot and yellowish fringes. Wing expanse: 44 mm. Japan (Hokkaido) in May and June.
- angustipennis*. **M. angustipennis** Mats. Forewings dark brown, peppered with reddish. Transverse lines extinct with the exception of the yellowish subterminal line which has a reddish brown inner shade. The round obsolescent orbicular stigma with pale surround, the large somewhat dusky reniform stigma similarly has a pale circumscription. Posterior to subterminal line, marginal area is widely paler. Fringes dark grey with paler base line. Hindwings of same shade as forewings. Wing expanse: 36 mm. Japan (Hokkaido).
- albolineata*. **M. albolineata** Mats. Forewings dark brown with obsolete dark transverse lines. The anterior line undulate, twice excurved, the posterior line oblique, barely undulate. The small round orbicular stigma is grey-white with dark surround, reniform yellowish white with similar black-brown circumscription, claviform distinct, deep brown. Veins dusted with black-brown. The narrow subterminal line snow-white with distinct "W" in centre. Hindwings dark grey, paler towards base, with white fringes and dusky brown discal lunule. Wing expanse: 34 mm. Hokkaido.
- nigropunctata*. **M. pulverulenta** Esp. (Vol. 3, p. 91, pl. 22 g). — **nigropunctata** Wehrli is a form with distinct dark transverse lines and dots. Described from Switzerland.
- fluvilinea*. **M. fluvilinea** Mats. has narrower forewings, grey with faint leaden gloss, transverse lines obsolete with exception of subterminal. The latter distinct, reddish brown with paler line outwardly. The round orbicular stigma with yellowish surround, the large reniform similarly, with slightly reddish centre. Apex faintly dusted with white. Hindwings dark grey with blackish discal lunule. Wing expanse: 32 mm. Japan (Hokkaido).
- nigrolinea*. **M. nigrolinea** Mats. Forewings grey, peppered with black-brown. Both central transverse lines obsolete. The large oval orbicular stigma indistinct, slightly dusky with fine pale surround. It extends at top almost to costa, as does also the obsolete reniform stigma. The wide subterminal line is black and bold, interspersed with orange scales, terminating at top in a triangular costal spot. Fringes yellow-grey with dark dividing line. Hindwings grey with yellowish metallic gloss and obsolete dark subterminal. Wing expanse: 35 mm. Japan (Hokkaido).
- fasciata*, *obscura*, *melaleuca*, *picata*. **M. incerta** Hufn. (Vol. 3, p. 91, pl. 22 h). Further forms of this exceedingly variable species have been described: — **fasciata** Lenz with dark median band, — **obscura** Lenz unicoloured brown, not sooty blackish like *atra*; — **melaleuca** Lenz unicoloured brown-black with stigmata with pale outlines and pale line before margin. — **picata** A. B.-H. somewhat resembles the form *pallidior* Strd. from Ferghana, but apex of forewings is more pointed, it is not so greyish yellow, rather more unicoloured pale brownish, scarcely mottled and especially the hindwings are much paler than in European specimens. From Karagai-tao.
- virgata*, *obscura*, *griseor*, *rufofusca*. **M. opima** Hbn. (Vol. 3, p. 92, pl. 22 k). — **virgata** Lenz has very dusky median area. — **obscura** Lenz has additionally dark grey basal and marginal areas. — **griseor** Strd. denotes outspokenly grey specimens, with no suffusion of reddish in central area of forewings and with an indistinct median shade. — **rufofusca** Strd. are dark brown suffused specimens flushed with reddish hue.
- puengeleri*. **M. puengeleri** Stfs. is classified close to *populi* (Vol. 3, p. 90, pl. 22 d) but the outer margin of forewings is rather more undulate. Colouration varies considerably from that of the other species, consisting of a mixture of greenish with pale and dark grey shades, similar to those of *Polyploca ridens*. Median and narrow outer marginal areas darker than the rest of the wing. Transverse lines quite indistinct and only vestiges left. Orbicular stigma a somewhat compressed oval shape with dark centre and encircled by a pale and very clear surround. Reniform stigma oblique, pale with alternate dark and pale surrounds, lower lobe with dark centre. Subterminal line is of peculiar formation, a faint "S" shape with deeper concavity in centre, almost devoid of dentations. Heavy black spots on outer margin. Hindwings pale grey with faint subterminal shade. The ♂ is of much more monotonous colouration than the ♀ which has very contrasting markings. Algeria (Blidah les Glacières). Mid April.
- obscurior*, *nictitans*, *cruda*, *fasciata*. **M. gracilis** F. (Vol. 3, p. 92, pl. 22 k). — **obscurior** Strd. has forewings suffused with dark brown. — **nictitans** Lenz has very prominent stigmata with bright pale surrounds. — **cruda** Lenz with clearly outstanding transverse lines outlining median area. — **fasciata** Wehrli with wide dark median shade. — Further we

have **obsolescens** Lenz with all markings more or less merged in ground colour. — **obscura** Lenz is a unicoloured dark grey form. — **marmorata** Lenz has dark striations in pale ground colour.

obsolescens.
obscura.
marmo-
rata.

M. coniertota Filipj. An insignificant species that may be compared with *pulverulenta* (Vol. 3, p. 91, pl. 22 g) = *cruda*. Forewings sandy brownish, peppered with brown scales, which are only absent in marginal area. An accumulation of these form transverse lines, the anterior one being somewhat more curved outwardly, the median angulated at lower angle of cell, the postmedian about parallel to margin and subterminal, that outlines the paler marginal area, is irregularly crooked. On outer margin there are intranervial dots. Hindwings monotonous sandy grey with indistinct darker marginal line. Wing expanse: 32 mm. Amur (Tigrovaja).

coniertota.

M. nigromaculata Höne (= *pfennigschmidti* Pglr.) (15 g). Forewings pale brownish white with deep black basal streak. Transverse lines are only indicated by an interspersion of dark dots and commence at costa by a heavier black dot. Claviform and orbicular stigmata are absent, in place of reniform there is a bold black angulated mark. Subterminal line is absent, in place of same 2 brownish spots, the one subapically, the other in centre. Hindwings grey-black with faintly dentate margin and somewhat paler fringes. Wing expanse: 35 mm. Japan (Yokohama).

nigro-
maculata.

35. Genus: **Clavipalpula** Stgr.

C. aurariae Obth. (Vol. 3, p. 92, pl. 22 l). As a synonym to this species, we must add: *pfennigschmidti aurariae* Höne.

36. Genus: **Euchorista** Warr.

E. limbata Btlr. (Vol. 3, p. 93). We are now able to illustrate this species from a specimen from the collection of HOENE (15 g).

38. Genus: **Cerapteryx** Curt.

C. graminis L. (Vol. 3, p. 93, pl. 20 h). According to HEYDEMANN *graminis* together with the synonyms: *gramineus* Haw. and *grisea* Spul. is the northern type and grey-brown or olive-grey. — **albinea** Bsd. is an extreme grey-brown form, median area dusky, veins yellowish white to margin, edged with longitudinal black streaks. — **tricuspis** Esp. on the other hand is the more monotonous red-brown south german form, only faintly marked with black in marginal area. — ab. **manca** Ljung. has grey-brown forewings with darker median area and no trace of paler veins; orbicular stigma is absent. Reniform stigma narrow and sickle-shaped. From Sweden.

graminis.

albinea.

tricuspis.

manca.

C. megalia Alph. (Vol. 3, p. 94, pl. 20 i). — **furiosa** A. B.-H. denotes specimens that are nicely suffused with rosy red. Such specimens, especially from the Juldus region are very large and have a wing expanse of 35—40 mm.

furiosa.

39. Genus: **Hyperiodes** Warr.

H. turca L. (Vol. 3, p. 94, pl. 23 a). — **athesiensis** Dhl. is an exceedingly dusky form from Terlan; the lines are obscured and from the monotonous blue-blackish sooty grey-brown, only the small stigmata are discernible. Hindwings also are heavily suffused with grey-black. — **virgata** Dhl. from the same locality has only the median area darkened. Basal and outer marginal areas retain the colouration of type form, the black median lines are therefore slightly more apparent in this form. May to October, probably 2 broods. Very likely the dusky form mentioned above is the same as the older name: — **obscura** Tutt or possibly — **livida** Tutt which applied particularly to the more blue-blackish sooty specimens. — **lutescens** Tutt is the counterpart, being the much paler, almost yellowish red form.

athesiensis.

virgata.

obscura.

livida.

lutescens.

H. camuna Trti. forms according to the author a transition from *turca* to *fuliginosa* Hmps. Forewings dark brown with rosy suffusion and fine black diagonal striations. The antemedian is quite extinct, the posterior transverse line is almost straight, it does not extend to costa and is not incurved there, it is deep black with rosy outer edge. At end of cell there is only a small white spot. At margin there is a double black line with rosy interfilling and no marginal striations as in *turca*. Fringes pure rose. Hindwings dark grey-black, inner margin and cell with rosy hairs, fringes as those of forewings. Underside jet-black with rosy hairs, quite without transverse lines. Wing expanse: 38—39 mm. It is found together with *turca* at Cogno (Val Camonica).

camuna.

- bicolor.* *H. grandis* Btlr. (Vol. 3, p. 94, pl. 23 a). — **bicolor** Wilem. has ante and postmedian areas dusted with black. Hondo (Japan); Corea. — **coreana** Mats. forewings sparsely striated, the anterior transverse line wider, more boldly curved outwards in cell. At end of cell, no black-brown streak; posterior transverse line heavier, daintily undulate, marginal dots minute. Hindwings reddish brown with wide dark median band not extending to margins. Marginal dots absent. Wing expanse: 53 mm. — **ogasawarae** Mats. Forewings straw-yellow with olive hue. Anterior transverse line obsolete, not undulate, streak at end of cell absent. Posterior transverse line narrower, more sharply serrate especially above inner margin. The dark submarginal spot is absent. Fringes browner. Hindwings of same colour as forewings, with wide dark central spot. Fringes pale yellowish. Wing expanse only 38 mm. Honsho, Sapporo (Japan). — **suffusa** Mats. Forewings pale yellowish grey, inclined to brown in disc, interspersed with black-brown, with indistinct anterior transverse line. At end of cell there is a yellowish white crescentiform mark, which in ♂ has a dark outer edge. Posterior transverse line brownish, oblique, scarcely undulate, almost straight. This form is said to closely resemble *fuliginosa*. Hokkaido. — *hirayamae*. **nirayamae** Mats. Forewings olive-grey, practically without darker striations; in marginal area the colour turns to reddish brown. Anterior transverse line obsolete, posterior line delicate, almost straight and sharply dentate, not excurved below costa. Marginal dots very indistinct. Hindwings fuscous with dark streaks along veins in postmedian area, fringes paler. Wing expanse: 53 mm. Honsho (Japan). The classification of the last 4 forms, which MATSUMURA places as "ab." to *grandis* seems uncertain to me. It is possible that they are genuine species.
- sachalinensis.* **H. sachalinensis** Mats. is closely related to *divergens*. It has pale grey-brownish to yellowish brown forewings with almost straight, sometimes gently undulate antemedian line. A pale grey crescentiform mark with outer brownish black edge at end of cell. The postmedian line much closer to margin than in *turca* and somewhat excurved outwardly. Hindwings are not described. Wing expanse: 45—47 mm. S. Saghalin.
- sidemiensis.* *H. divergens* Btlr. (Vol. 3, p. 94, pl. 23 b), — **sidemiensis** Kard. is much larger, wing expanse: 47—57 mm: ground colour brighter, anterior transverse line less undulate, posterior line is only slightly prominent, marginal area darker. Narwa Island (Amur territory).
- albivenis.* *H. curvata* Leech (Vol. 3, p. 94, pl. 23 b). — **albivenis** Strd. has veins more clearly indicated by whitish on forewings, the grey-black striations are much coarser and more heavily marked. Corea, central China.

40. Genus: **Hyphilare** Hbn.

- demaculata.* *H. lithargyria* Esp. (Vol. 3, p. 95, pl. 23 c). — ab. **demaculata** Hoffm. & Klos denotes specimens on which the white spot at end of cell is completely absent. Described from Styria. — **meridionalis** Dhl. is the southern race, grey to whitish grey with paler hindwings having a postmedian arched row of fine dots. In contrast to *argyritis* Rbr. these are large, well built specimens. PÜNGELER considered them identical with *argyritis*, which in his opinion was not a genuine species. This form occurs in the S. Tyrol (Terlan, Bormio) to the Abruzzi and as far as Sicily. — **deinographa** Dhl. from the same territory, are more heavily peppered with grey with very bold markings of lines and dots. — **myopolia** Dhl. similarly grey, more rarely yellowish or reddish grey, uniformly darkly dusted without any trace of lines or dots. S. Tyrol. — **amota** Strd. is a uni-coloured brown race from Norway, devoid of markings, except for the whitish discal spot.
- argyritis.* **H. argyritis** Rbr. (Vol. 3, p. 95, pl. 23 c) is stated to be a genuine species; I have been unable to ascertain any outward anatomical differences from *lithargyria*, in specimens before me from Algeria. They may possibly be slightly sleeker and smaller, and are pale grey-white, faintly marked, the marginal row of dots almost extinct, hindwings semitransparent, glossily pure white, faintly dusky in ♀. The illustration in Main Volume does not tally with this description and we are giving a fresh illustration (15 g). Compare also what is said above under *lithargyria meridionalis*. Specimens from Italy should certainly be classified to the latter and not to *argyritis*.
- cortii.* *H. albipuncta* F. (Vol. 3, p. 95, pl. 23 d). — **cortii** Krüger, which was described as a genuine species, is according to VORBRÖDT, a typical *albipuncta*. — **repicta** KRÜGER is a form with slightly prolonged white cell spot. — **albilinea** Wehrli denotes an aberrative specimen in which the white spot at end of cell is extended forming a white horizontal line extending to inner transverse line. Thurgovia. — subsp. **rufotincta** Wgnr. are particularly dark reddish brown specimens from Tunisia.
- proxima.* **H. proxima** Leech. (Vol. 3, p. 96, pl. 24 a). This species, that is very like *l-album*, also occurs in the Transalai, from whence I have a specimen before me representing a considerably paler form than was shown in the illustration.
- inframicans.* **H. inframicans** Hmps. (Vol. 11, p. 89, pl. 11 g, h). This species, that is dealt with in the Indo-Australian Volume and which somewhat resembles *proxima*, is also mentioned by WILEMAN as occurring in Japan (Hondo). Forewings inclined to violet-grey, only yellow-brown in and below the cell, markings otherwise fairly identical.
- duplicata.* **H. duplicata** Btlr. (= *prominens* Moore nec Wkr., *rufula* Hmps.) (Vol. 11, p. 91, pl. 12 a) (15 g) was omitted from Main Volume. It should be classified after *riparia* Rbr. (Vol. 3, p. 96, pl. 23 f). Somewhat larger than *riparia*, the wings narrower and have a bluish red sheen. Hindwings very dusky with white fringes. This species, that is well known from India (Punjab, Sikkim and Assam), also occurs in the Amur territory and

there are specimens in the PÜNGELER collection in the Berlin Museum. — **limbopuncta** *Strd.* denotes the more *limbo-* usual form with black marginal dots on forewings. East Asia. *puncta.*

H. albicosta *Moore* (Vol. 3, p. 96, pl. 23 f). — **uniformis** *Strd.* has forewings more uniformly suffused *uniformis.* with fuscous, the pale band diffusing before apex. Eastern and southern Asia.

H. flavostigma *Brem.* (Vol. 3, p. 96, pl. 24 a). The illustration on pl. 24 a does not in the least represent *flavo-* this species. The type from the Amur looks almost like the illustrations of — *singularis* on pl. 23 f, g, only it *stigma.* is more whitish in tone of ground colour. — **ochracea** *Strd.* must be considered a synonym of *singularis*. The *ochracea.* type of the latter emanates from Yokohama and corresponds exactly also to the description of WARREN of *singularis* in the Main Volume.

H. macaria *Rbl.* resembles a small pale *unipuncta*, but has more attenuated antennae, shorter wing *macaria.* contour, longer anal tuft and besides, the long black hairs at base on underside of abdomen, indicate the relationship with *lithargyria*. Forewings yellow-brown, slightly reddish outwardly, with faintly indicated reddish reniform stigma, edged below by a small white spot extending along the vein. Posterior to same a boldly curved row of black dots on the veins. On the margin are small black triangular marks, fringes dark brown. Hindwings blackish grey with white fringes having black extremities. Cyprus (Nicosia).

H. seifersi *Rangn.* appears to be very close to *littoralis* (Vol. 3, p. 96, pl. 23 g) but is somewhat smaller. *seifersi.* Forewings silky and glossy yellowish with slightly reddish tone. Somewhat whiter on costa, along mediana and widely white on veins 3 and 4. Veins in marginal area finely white. Below the white mediana a blackish shade, which close to end of cell also appears above the mediana and which expands between veins 3 and 5 towards the margin. Just before the margin it is continued also above vein 5. Hindwings silvery white. Wing expanse: 28—30 mm. Guberla (S. Urals). FILIPJEV writes to say that he considers the species identical with *deserticola* *Bart.*, which however is not possible according to a cotype of the latter, which is now before me.

41. Genus: **Sideridis** *Hbn.*

S. conigera *Schiff.* (Vol. 3, p. 96, pl. 23 g). — ab. **obscura** *Hoffm. & Klos* refers to very dark brown *obscura.* specimens from Styria, which however are not identical with the english melanic *suffusa*. — **mezeyi** *Diozh.* *mezeyi.* denotes a brick-red ♂ that is finely dusted with brown, with very distinct black-brown lines. The white spot below the dark orange reniform stigma is very distinct. Hindwings yellow-grey with reddish fringes. S. Carpathians (Retyezat mountains).

S. vitellina *Hbn.* (Vol. 3, p. 97, pl. 23 i). — *lacteicolor* *Rothsch.* is synonymous with *pallida* *Warr.* — *vitellina* **decolorata** *Dhl.* is an extreme form of *pallida* *Warr.*, which was mentioned in Main Volume. It is very small, *decolorata.* wing expanse 27—32 mm, ground colour almost whitish, at best yellowish white, completely devoid of markings. In *pallida* the transverse lines and cell spot are still discernible. Hindwings pure white, silky and glossy and rather iridescent. Southern Abruzzi at abt. 1000—1800 m altitude. — **grisescens** *Dhl.* is a form that in- *grisescens.* clines towards grey or yellow-grey, from the mountains of the S. Tyrol, the Sabine and Samnit mountains. — **saturation** *Dhl.* is the counterpart of the extreme *pallida* forms. It is of almost rusty red colouration and very *saturation.* boldly marked. Hindwings darker with prominently darker veins and iridescent. These are very large, strongly built specimens occurring particularly in Italy (Tivoli, Campagna).

S. evidens *Hbn.* (Vol. 3, p. 97, pl. 23 i). — **lampra** *Schaw.* is a much larger race (38—40 mm) from Bosnia *lampra.* and Carniola, of dark fuscous colouration.

S. prominens *Wkr.* (Vol. 3, p. 97). We are able to give a good illustration of this species (15 h) which *prominens.* was not illustrated in Main Volume. — **tiburtina** *Trti.* (15 h) is a large, heavily built race, rather more densely *tiburtina.* interspersed with black and with bold black marginal dots. Collar has 2 wide grey transverse bands. Abdomen and anal tuft grey, the fore tibiae are longer and more densely covered with grey hairs. Tivoli.

S. velutina *Ev.* (Vol. 3, p. 97, pl. 23 k). The illustration in Main Volume was not good, we are giving *velutina.* a better picture here (15 h). *coreana* *Mats* is synonymous, as both the description and the illustration correspond to this species. — **enervata** *Warn.* is a form, which in contrast to the greyish type-form has no prominently *enervata.* pale veins and is of browner colouration, markings being diffuse. From the Amur.

S. comma *L.* (Vol. 3, p. 98, pl. 23 a). STANDEFUSS occupied himself with this species and ascertained *comma.* in conjunction with PÜNGELER that the main german form — **turbida** *Hbn.* (228) should be removed from the *turbida.* synonyms and considered the type form. It is the usual pale sandy brown form, to which *comma* *Tutt* would be added as synonym, whilst LINNÉ's type would denote the alpine darker grey specimens of *turbida* *Hbn.* 618, with which *suffusa* *Tutt* and *engadensis* *Wgnr.* would coincide. — **rhodocomma** *Pglr.* is not a genuine species, *rhodo-* *comma.* but only a form of *comma* from Turkestan. We are giving an illustration (15 h).

- propensa*. **S. propensa** Pglr. (Vol. 3, p. 98). We are able to give an illustration (15 h) of a specimen in the PÜNGELER collection.
- pseudo-comma*. *S. andereggii* Bsd. (Vol. 3, p. 98, pl. 25 b). — **pseudocomma** Rbl. & Z. (15 h) is larger than type; mediana and its branches are more widely outlined in pure white, also the whitish colouration at end of cell is whiter and the dark shading, that is there in *andereggii*, is absent. Marginal dots are small or absent. Many of the ♀♀ are a darker brown, corresponding to the form *cinis*, but transverse lines are almost always absent. A subspecies described from Albania, which strongly resembles *comma*, but also reminds one of *lineata* Ev. from S. E. Russia.
- jordana*. *S. phlebitis* Pglr. (Vol. 3, p. 98, pl. 24 b) and **S. jordana** Bartel (Vol. 3, p. 98, pl. 24 c). Both these illustrations were very poor copies from HAMPSON. We are replacing them by better illustrations here (15 i).
- cinnamomea albivena*. *S. sricula* Tr. (Vol. 3, p. 98, pl. 25 c). — **cinnamomea** Trti. (15 i) is a small form from Sardinia that is suffused by cinnamon brown. — **albivena** Grasl. (= *fuscilinea* Grasl.). The main characteristic of this form is not the row of dots on veins, but a prominent blackish longitudinal streak under the delicately white mediana, which extends beyond the cell under vein 5. It certainly also occurs in central Italy and there is a typical specimen from Aix-la-Chapelle in the collection of PÜNGELER! — **belgiensis** Lamb. is an extreme form of the preceding with especially bold black longitudinal streak. From Belgium.
- alopecuri*. **S. alopecuri** Bsd. (Vol. 3, p. 99, pl. 24 b). In place of the unrecognisable illustration in Main Volume, we are giving a fresh picture (15 i) of this insignificant species, from a specimen from Kertsh.
- putrida palaeolinae*. **S. putrida** Stgr. (Vol. 3, p. 99, pl. 25 d) is a genuine species and has no connection with *indistincta* Chr. On the other hand — **palaestinae** Stgr. (Vol. 3, p. 99) has no claim to specific rank. It is only a larger form of the preceding, somewhat more reddish in tone, without the blackish longitudinal streak below the cell. Neither is the marginal area blackened. An illustration is given here (15 i).
- serratilinea virata*. *S. scirpi* Dup. (Vol. 3, p. 99, pl. 25 e). — **serratilinea** Wgnr. has a sharply dentate postmedian transverse line. From Gravosa. — **virata** Costni. has monotonous dull yellow-grey forewings without the central longitudinal shade and transverse row of dots. Veins very prominently white. From Mte Gibbio, not rare in the Spring brood. — **syriaca** Osth. is larger than type and the form *montium* (29—33 mm) has forewings pale yellow-grey with faint reddish brown sheen, markings varying in intensity, the black dot in reniform stigma prominent. Hindwings grey-white, darker at margin. In 2 broods in the Taurus (Marash).
- mesotrosta*. *S. opaca* Stgr. (Vol. 3, p. 99, pl. 24 c) and **S. mesotrosta** Pglr. (Vol. 3, p. 99, pl. 24 c) were illustrated from bad copies and are therefore now being illustrated afresh (15 k).
- favicolor*. **S. favicolor** Barr. (Vol. 3, p. 100, pl. 25 k) is found to belong also to the german fauna and especially that of Slesvig-Holstein, according to the discoveries of HEYDEMANN, who has found the species on the islands of North Friesland. It occurs apparently mainly in the fuscous forms and is found at night on marram grass flowers.
- dungana*. *S. impura* Hbn. (Vol. 3, p. 100, pl. 25 f). — **dungana** Alph. is now illustrated from a typical specimen (15 i).
- candida*. *S. pallens* L. (Vol. 3, p. 101, pl. 25 g, h). — **candida** Rocci is the pure white form without the slightest yellowish hue. From Piedmont.
- algorica*. **S. algorica** Obth. (15 k) is best classified next to *obsoleta* (Vol. 3, p. 101) and *straminea*. Upperside pale grey, forewings with faint reddish suffusion, paler than the rather more blackish grey hindwings. Between the veins there are delicate black striations, behind the cell there are a faint row of black dots as in *obsoleta*. Underside is glossy and silky, pale grey, costa of forewing whitish, blackish suffusion in disc, with black costal spot as in *straminea*. Hindwings on underside peppered with grey with black dotted line on both wings, commencing at costal dot. It is darker than *straminea*, especially on hindwings. No cell spots on underside; *congrua* differs by the white mediana on upperside and silvery gloss of underside; *obsoleta* has less quadrate contour of forewings, rather heavier black dots on upperside of forewings, whitish disc on hindwings, only blackish at margin and with cell spots on underside. From Batna, Aflou and Lambessa in Algeria. Obviously in 2 generations in June and September.
- pinguis*. *S. pudorina* Schiff. (Vol. 3, p. 101, pl. 25 i). — **pinguis** Dhl. is a form that closely resembles *rufescens* Tutt. It is strongly suffused with red, but is so densely peppered with dark grey-brown speckles, that the nice rich red colour is scarcely apparent. It is a very large race from the Etschtal (Terlan).
- incognita*. **S. incognita** n. n. (= *impuncta* Stgr. nec Guen.) (15 k) is best classified near to *phlebitis*. It was omitted from Main Volume. I have had an opportunity of inspecting the type, of which an illustration is now given. Forewings pale reddish yellow-brown, somewhat paler at inner margin, with whitish costa and veins, the

mediana white to the margin and somewhat shaded below same; towards the margin there are faint grey streaks in the interstices, cell spot absent, base of fringes dark grey. Hindwings darker than the forewings, grey-black, with white fringes. *S. Ussuri*.

S. subrosea Mats. has rosy grey forewings, a black-brown spot in the lower angle of cell, otherwise *subrosea*, devoid of markings except for a sparse interspersion of brownish black scales. Costa and fringes reddish. Hindwings, paler at base, dark brownish with rosy red fringes. Wing expanse: 42—46 mm. Honsho and Hokkaido (Japan).

S. griseola Mats. Forewings yellowish grey peppered with sparse brownish black scales, devoid of *griseola*, markings except for a faint darkening in the interstices, there is a row of indistinct blackish dots on the margin. Hindwings whitish with silky gloss, the veins with darker streaks on each side, dark spots on apical margin. Wing expanse: 38 mm. Hokkaido.

41a. Genus: **Neoborolia** Mats.

Is very close to the Genus *Borolia* which WARREN had classified under *Sideridis*, as it only differs by the hairlike covering of the thorax. In *Neoborolia* head and thorax are coarsely scaled; the apex of forewings is rectangular. Only 1 species:

N. noshirae Mats. resembles *S. griseola* Mats. in colour and contour, but has a brownish black row of *noshirae*, dots in postmedian area. Forewings pale yellowish with darker streaks alongside the veins, the veins themselves however paler than ground colour, a few black scales are interspersed below the mediana and submedian fold; marginal area somewhat darker. Hindwings of same colour as forewings, a row of black-brown dots towards the apex on the margin. Wing expanse: 36 mm. Honsho.

Subfamily: **Cucullianae**.

1. Genus: **Brachygalea** Hmps.

B. albolineata Blach. (Vol. 3, p. 102, pl. 28 d). The illustration in the Main Volume suffices to recognise *albolineata*, this small algerian species.

2. Genus: **Cucullia** Schrk.

C. jankowskii Obth. (Vol. 3, p. 102, pl. 26 a). — **japonica** Mats. is a much paler form from Japan (Sapporo, *japonica*, Daisen).

C. argentea Hufn. (Vol. 3, p. 102, pl. 26 a). — **divina** Culot is a dusky, deep olive-green form from E. *divina*, Prussia. — **fasciata** Schreiber denotes a bred specimen from near Berlin which has a silvery apical spot and *fasciata*, the 2 submarginal spots enlarged and confluent so that they form a wide silvery submarginal band. On the other hand the subdiscal spot is completely absent.

C. argentina F. (Vol. 3, p. 102, pl. 26 b). — **grisescens** Wgnr. the material characteristics are the grey *grisescens*, collar, thorax and scapulae; the dark markings of forewings are bolder, hindwings pure white, the veins are more densely scaled with black in the region of the costa, thus appearing more heavily marked. This is a well differentiated, constant mountain race from the region of Sultan-Dagh in Asia Minor. It differs from the form *achalina* Pglr. by the retention of the pure white hindwings.

C. bubaceki Kitt (16 a) is a new species that closely resembles *argentina*, but body and forewings are *bubaceki*, ashy grey. The silvery longitudinal band, that is narrower than in *argentina*, is deeply excurved in an arc at its outer end and has both ends protracted to a point, the dentate projection is more distinct on the underside. The silvery band has a somewhat brownish edge anteriorly and posteriorly. Veins of hindwings are darkened towards the margin and costa and margin of hindwings are dusky grey-brown. Described from Spain (Albaracin and Ribas near Madrid) but also probably occurring in Algeria as OBERTHÜR indicates that from there he has received besides typical *argentina* also *achalina* and this very probably will prove to be *bubaceki*. Larva with somewhat less prominent transverse pads than *absinthii*. It is a nice greenish blue with white longitudinal lines, black hairy warts and dark transverse spots on the dorsum. It feeds on *Artemisia herba alba* and pupates in a loose puparium composed of sand, earth and bits of vegetation. There are 2 broods in July and September.

C. biradiata Kozh. (16 a) belongs to the same group and also closely resembles *argentina*, differing *biradiata*, however from same by the wide silvery longitudinal band that extends to the apex and which is silvery throughout, also at apex. Besides, a second narrower longitudinal band extends along the inner margin almost to the anal angle of forewing. From around Minussinsk, captured in June.

- mixta*. **C. mixta** *Frr.* (Vol. 3, p. 103, pl. 26 b) occurs in a paler form also in Upper Italy.
- sachalinensis*. **C. sachalinensis** *Mats.* closely related to *maculosa* *Stgr.* (Vol. 3, p. 103, pl. 28 a), forewings mottled with leaden grey scales, the round orbicular stigma with white surround, black on both sides, reniform stigma obsolete, only indicated by a white arc inwardly; posterior transverse line black-brown, sharply angulated on submedian fold; in each of the cells 1, 4 and 6 a black longitudinal streak. Hindwings dark brown somewhat paler at base. Wing expanse: 37 mm. N. Saghalin (Alexandrowsk).
- infuscata*. **C. cineracea** *Frr.* (Vol. 3, p. 103, pl. 26 c) has also been discovered in Italy. — **infuscata** *Tshetv.*, specimens from Minussinsk and the surrounding country have very dusky hindwings in both sexes. June and July.
- immaculata*. **C. artemisiae** *Hufn.* (Vol. 3, p. 103, pl. 26 c). — ab. **immaculata** *Bromb.* the 2 stigmata are completely absent on both forewings. Bred from a larva from Kaiserstuhl. — **obscura** *Trti.* is a very dusky grey-black monotonous form in which only the stigmata and the black longitudinal streaks are distinct, the pale spot below stigmata is almost completely extinct. Apennines of Modena. — **perspicua** *Warn.*, a local race from Ussuri (Suifun) much darker and more distinctly marked than specimens from N. Germany; stigmata in contrast to the name type form, very prominent, especially the orbicular stigma with its grey centre widely encircled by white.
- tescorum*. **C. tescorum** *Pglr.* (Vol. 3, p. 104) we are now able to give an illustration (16 a).
- jozankeana*. **C. jozankeana** *Mats.* This resembles *perforata* *Brem.* (Vol. 3, p. 105, pl. 26 e) in size and wing contour but is much paler and differs in the marking. Forewings pale grey, the black anterior transverse line only wide at costa, twice sharply angulated below the median; the orbicular stigma white encircled by black, elliptical at top, inwardly of same a white cuneiform mark which is separated from the stigma by a black streak. Reniform stigma whitish with black-brown edge and brownish centre. The undulate postmedian has a paler outer edge. Anterior to same above the inner margin a black oval spot. Veins black in marginal area with 3 black marks between them subterminally. Hindwings paler than in *perforata*. Wing expanse: 40—45 mm. S. Saghalin (Ichinosawa; Kawakami). End of July, early August.
- aksuana*. **C. santonici** *Hbn.* (Vol. 3, p. 104, pl. 26 d). — **aksuana** *f. n.* (16 a) a form that is completely suffused with ochreous yellow; from Aksu. Type in the collection of PÜNGELER.
- vicina*. **C. vicina** *A. B.-H.* (16 a) very close to *mixta* *Frr.* (Vol. 3, p. 103, pl. 26 b) but has much wider wings, bolder markings and is more darkly coloured. Forewings dark ashy grey, somewhat paler in marginal area, suffused with brownish red, especially in disc. Therein the stigmata with their delicate white surrounds stand out prominently. Marginal lunules boldly black. Hindwings much darker with distinct central spot. Wing expanse: 42—45 mm. Alai; Karagai-tao; Juldus.
- rhodana*. **C. umbratica** *L.* (Vol. 3, p. 105, pl. 26 f). — **rhodana** *Cabeau* has forewings with a slightly roscate hue. Hindwings whiter than type. Described from Belgium. — **obscura** *Buresch* is a melanic form described from a single specimen from Sofia. — **albida** *Spul.* is the counterpart thereto, being a pale whitish ashy grey form, that occasionally occurs among the type form and may be identical with *clarior* *Fuchs.*
- amoenissima*. **C. chamomillae** *Schiff.* (Vol. 3, p. 105, pl. 26 g). There is still considerable uncertainty in regard to this species and probably the form from Algeria described as — **amoenissima** *Obth.* is the same as the following species *wredowi*; *amoenissima* was described as a smaller form with paler grey and clearer and more distinct markings. From Algeria and Tunisia.
- wredowi*. **C. wredowi** *Costa* (16 a) has no connection with *santolinae*, but is a genuine species that is difficult to distinguish and is in close relationship to *chamomillae*. It is apparently very widely distributed. In the first instance it differs from *calendulae* by the more dainty build, narrower wings, more delicate markings and a certain bluish grey tone to the colouration which in the ♀ is usually somewhat darker. *santolinae* is also similar but is more robustly built, markings are heavier and more contrasting, the whitish dots under stigmata are more distinct and hindwings more brownish. From Capri, Sicily, Algeria, Tunisia, Palestine, Syria, Taurus (Marash). — **caucasica** *(B.-H. i. l.) S.-R.* is a form with coarser pale dark mottling from the Caucasus. The larva is pale green or brown with yellow longitudinal stripes and pale brown ringed minute punctiform warts. It feeds in April and May on Achillea, hiding by day. The moth occurs from December to March and in this respect resembles *inderienses*. In my opinion however one cannot classify *judaeorum* under *wredowi* as SOHN-RETHEL has done.
- achilleae*. **C. achilleae** *Guen.* (Vol. 3, p. 106, pl. 28 a). This rare little species that hitherto has only been found in Andalusia is, according to a specimen in the PÜNGELER collection, also to be found in Castile. The old illustration did not truly represent the species and we are giving a fresh picture here (16 b). It somewhat resembles a small pale *tanacetii* with very heavy black subanal marking, the fine black streak below and behind the end of cell is absent. Hindwings pure white with narrow brown marginal line. The species is not allied to *wredowi*.
- beata*. **C. beata** *Rothsch.* is one of the finest species in the *umbratica* group. It is close to *tanacetii* but much smaller and the black markings differ considerably. Antennae brown; head ashy grey, thorax bluish ashy grey, abdomen inclined to whitish with faint yellowish tinge laterally and with dark dorsal line and anal tuft.

Forewings pale bluish ashy grey, mottled with pale grey-brown. The veins are darker at their extremities and there is a fine black longitudinal central line from base to midway of the mediana and below same. Posteriorly a denser oblique black band which is crossed at the base by a black streak. A black line subterminally above vein 4. Hindwings semi-transparently white, veins and a marginal band ashy grey. Wing expanse: 39 mm. Described from 1 ♀ from Sebdou; captured in September.

C. dracunculi Hbn. (Vol. 3, p. 106, pl. 27 b). The following forms that were described by WARREN as species should be placed here — **anthemidis** Guen. and **linosyridis** Fuchs. We are illustrating both (16 b) as the illustration of the former in the Main Volume (27 b) is much too large and unrecognisable; *linosyridis* is on an average somewhat larger and slightly darker than *anthemidis*. Costal area somewhat browner. It has recently been discovered in S. Baden (Kaiserstuhl). *anthemidis.*
linosyridis.

C. cemenelensis Bours. (16 b). A new species that very closely resembles the forms mentioned under the preceding species. It is to be distinguished from them, firstly, by the long yellowish hairing of the 1st and 2nd segments of the palpi; in *anthemidis* the palpi have uniform short grey-white hairs from base to the point. *cemenelensis* generally is somewhat dusker grey, forewings being decidedly wider at outer margin. The black row of dots at margin is distinctly heavier. The marking of the stigmata is not so pronounced and the black subanal streak is absent, in place of same there is only a faint brownish shade. Hindwings paler, outer margin relatively somewhat darker with a faintly indicated discocellular spot. The imagines emerge earlier. End of May to middle of June. Described from Nice and also found in Spain. *cemenelensis.*

C. amota Stgr. (Vol. 3, p. 106). In the Main Volume this was included as a form of *dracunculi* but according to FILIPJEV's investigations, it is a genuine species that certainly closely resembles *dracunculi*. It makes however a rather sleeker impression, the wings are narrower and it is larger and rather paler in the discal area. Hindwings are somewhat darker at the margin and paler at the base, the marginal band therefore appears rather more prominent than in the more uniformly brownish *dracunculi*. We are illustrating the species here (16 b). Hitherto it has only been recorded from Minussinsk and the Altai (Ongodai). *amota.*

C. tecca Pglr. (Vol. 3, p. 107, pl. 27 b). — **judaeorum** Strd. (16 c), the form from Palestine has according to the original description of STRAND (a translation of HAMPSON's diagnosis of his "ab. 1.") head, thorax and forewings a more greyish blue and much less mottled with dark brown. I have before me specimens bred by PAULUS from Jerusalem, according to which, it seems to have slightly wider wings and to be somewhat paler and more bluish grey, basal streak is slightly more prominent. Under no circumstances can this short and wide winged species be classified with *wedowi* as SOHN-RETHEL suggests; if it is not conspecific with *tecca*, it is a genuine species. The larvae, of which I have a specimen preserved in spirit, is earthy brown with blackish markings, there is a dorsal band of the ground colour and attached to same a mottled blackish band with an undulate line below, laterally there is a band of slightly curved flat crescents, the area above and below same is faintly mottled; head pale brown, dotted with brown and striped. *judaeorum.*

C. tosca A. B.-H. (16 c) is very close to *inderiensis* (Vol. 3, p. 107, pl. 27 c). Forewings pale ashy grey, partially somewhat darker, the fine black basal streak on almost white ground extending to centre of wing; there are white longitudinal streaks between the delicately black marginal veins. At end of cell a round white spot. Hindwings pale grey, faintly darker at margin. Much paler than *inderiensis*, almost like *tanacetii*, without the rusty brown admixture of the former. Wing expanse: 42—43 mm. From Karagai-tao and Issyk-Kul. *tosca.*

C. biskrana Obth. resembles *C. syrtana* in size but the forewings are much less narrow and long, grey-white, almost devoid of markings only shaded slightly darker than the ground colour, towards the outer margin there is a row of small black internerval streaks extending obliquely downwards from the apex. Near the anal angle there is a small black divided mark; marginal line white. Hindwings impure white, grey at margin, abdomen yellowish. The ♀ rather darker. Biskra; Blidet Amar, from September to January. Perhaps it would be better classified nearest to *syrtana* under *Copicucullia*. I have not seen a specimen. *biskrana.*

C. lucifuga Hbn. (Vol. 3, p. 107, pl. 27 d). — **obscura** Lenz denotes a very dusky ♀ specimen from Bavaria. The black shading extends along the inner margin, in outer marginal area and on the abdomen. *obscura.*

C. xeranthemi Bsd. (Vol. 3, p. 108, pl. 27 d). — **atrocaerulea** Tshetv. was described as a subspecies with much darker wings, forewings marked with blue-black. From Minussinsk. *atrocaerulea.*

C. fuchsiana Ev. (Vol. 3, p. 111) is wrongly classified by WARREN with *Cheligalea scopariae* Dorf. The characteristic spur of the foretibiae for *Cheligalea* is absent in *fuchsiana*, which is a genuine *Cucullia* closely related to *xeranthemi*. Apart from the anatomical distinctions it is differentiable from *scopariae* by the purer white of the surrounds of the stigmata. A further characteristic is the pointed triangular claviform stigma with a pure white patch immediately posterior to same extending to the subterminal line. The posterior transverse line is quite extinct and hindwings are much paler than in *scopariae*. Urals, Altai, Kuku-Nor, Amur and Ussuri. We are illustrating this small species (16 c). *fuchsiana.*

- mauretanica*. *C. scrophulariphila* Stgr. (Vol. 3, p. 109, pl. 27 f). — **mauretanica** Bours. is much darker at costa and inner margin, so that it reminds one of *prenanthis*, on the other hand the submedian area of forewings is much paler, especially in the ♂. Hindwings considerably darker with well developed diseoidal spots. These are characteristic of the species. Spanish Morocco, Algeria.
- timberia*. *C. blattariae* Esp. (Vol. 3, p. 109, pl. 27 f). — **timberia** Drt. is the race from Capri, small and with especially dark brown hindwings which are almost as dark as those of *scrophulariphaga*. Forewings dark iron grey with very distinct marking (16 c).
- barthae*. **C. barthae** Bours. (16 e) is larger than *blattariae*. Forewings wider and more elongate, submedian area almost completely filled by a long pale patch, brownish in disc and postmedian area. Hindwings more angulated, apex protracted, quite impure grey-brown, discoidal spot frequently indicated; *blattariae* has whiter hindwings with darker outer margin. There is also a resemblance to *anceps* but the latter is much paler, more whitish, larger and more heavily built with wider white hindwings. In the Minutes of the Entomological Society of Munich (23rd Volume, part 1, p. 21 [1933]) the author gives a very handy identification table of these species that so closely resemble one another and we refer to same here. Taurus (Marash); Anatolia; Diabekir; Lebanon; Haifa; Beirut. The larvae feed on Scrophularia in June and resemble the *blattariae* larvae but the head is a golden yellow inclining to orange. Imagines emerge in March, April.
- reisseri*. **C. reisseri** Bours. (16 d) has superficial resemblance to *thapsiphaga*, the larva also is very similar. The moth differs however by its greater size and the very dark slate grey colouration that reminds one of *scrophulariphaga*. The posterior transverse line is visible throughout its extension, the anterior transverse line is paler and stands out clearly, showing 3 large pointed dentations. The submedian area is distinctly paler and striated. Orbicular and reniform stigmata distinct, especially the former, with dark centre and with black dots at the lower end of the contour. Hindwings dark with wide blackish marginal band and distinct discal spot. Spanish Morocco (Xauen A'Faska), bred in May. The larva is bluish green with pale yellow dorsal line which has white edges and which expands on the anterior half of the segments to a round spot. There are wide whitish yellow lateral lines and black warts with bristles. Head a porcelain white with black dots. It feeds on the large mullein (Verbascum).
- minogenica*. **C. minogenica** Rbl. (16 d) somewhat resembles *blattariae*, it is larger and much darker. Forewings pure iron grey with very faint brownish striations in the cell and under the costa. The lower part of the inner marginal lunules is angulated and not merely curved. The white longitudinal streak over the inner margin is much less distinct being confined to a white longish patch before the inner marginal lunule. Hindwings deep black-brown to the base, in the ♂ pale yellowish grey in the disc. Also underside is much darker blackish. The larva has been found on Scrophularia at Assitae (Crete).
- scrophularivora*. **C. scrophularivora** Guen. (= *erythrocephala* Wgnr.) (16 d) should be removed from the synonyms of *blattariae* (Vol. 3, p. 109, pl. 27 f) and introduced as a genuine species. It is somewhat smaller than *blattariae*, the costa is paler, otherwise very similar but there are differences in the larva. The subdorsal markings are not connected on top, in *blattariae* they are united forming x-shaped marks. The head is inclined to red-brown and is not orange-yellow. It is found on Scrophularia eanina in June and again in the autumn, there being 2 broods. From Andalusia and Tunisia.
- osthelderi*. **C. osthelderi** Bours. is related with *scrophulariae* and *lychnitis*, it is somewhat smaller than the former and slightly larger than *lychnitis*. It differs from *scrophulariae* by narrower wings; by slightly bolder orbicular and reniform stigmata and through a more apparent whitish median longitudinal stripe. It is browner and not so grey as *lychnitis*. Forewings more elongate, orbicular and reniform stigmata less prominent. The best characteristic is the strongly contrasting wide dark black-brown costal margin against the long whitish pale submedian patch. Hindwings of ♂ quite blackish brown with discal spot indicated, paler in the ♀ only with a darker outer margin. Wing expanse: ♂ 37, ♀ 41 mm. Syria (Taurus: Marash) and Amasia.
- oberthüri*. **C. oberthüri** Rothsch., held by OBERTHÜR to be *anceps* (Vol. 3, p. 109, pl. 27 g), is unknown to me. Head yellow reddish brown, collar whitish yellow with brown edge, scapulae similarly, somewhat mixed with grey, thorax black-brown, abdomen yellow-reddish. Forewings whitish yellow, costa and subcostal area dusky grey-brown, a somewhat irregular band of the same shade extends from base of inner margin to the outer margin on vein 3, and there are a few oblique brown striations from outer margin inwards. There are 3 black spots in the cell on mediana 3. Hindwings yellowish white with yellow-brown veins. Extent of forewings: 22 mm. S. Algeria (Bou-Saada, El Kantara). Probably conspecific with one of the former species.
- lobnorica*. *C. biornata* F.-d. W. (Vol. 3, p. 110, pl. 27 h, i). — **lobnorica** f. n. (16 d). Specimens from Lob-nor in the PÜNGELER collection in the Berlin Museum are smaller, whitish, with greater yellow admixture and more delicate paler markings.
- lampra*. **C. lampra** Pglr. (Vol. 3, p. 110). We are now able to illustrate a specimen from the PÜNGELER collection (16 e).

3. Genus: **Copicucullia** *Smith.*

DUMONT created the Genus: *Pseudocopicucullia* for the palaearctic species of this group, the type of which is actually an american species.

C. syrtana *Mab.* (Vol. 3, p. 111, pl. 29 a) occurs eastwards as far as Egypt.

syrtana.

C. naruenensis *Stgr.* (Vol. 3, p. 111, pl. 29 a). We are now able to illustrate the form — **eumorpha** *Alph.* *eumorpha.* (16 e).

3a. Genus: **Metlaouia** *Dumont.*

Differs from the preceding by the boldly pectinated antennae of the ♂: actually should only have the rank of a subgenus.

M. oberthüri *Deckert* (16 e) has whitish ground of forewings densely bestrewn with grey-black; only the cuneiform marks in the interstices before the margin remain pure white, a streak above the black basal streak and a yellowish dusted longitudinal streak in and behind the cell. Of the other markings only the long indentations of the 2 transverse lines and an oblique black streak from the anal angle are distinctly visible. Hindwings whitish, veins and terminal line smoky brown, in the ♀ quite dusky brown. Algeria, Tunisia.

M. fiorii *Trti.* strongly resembles the preceding species, but is much paler in ground colour and the brown sharply dentate transverse lines are finer and more distinct. Ground colour is a pale bluish grey, markings are red-brown, almost just like in *oberthüri*. Hindwings silky glossy white, somewhat dusky towards the margin with fine dark marginal line and whitish fringes. Cyrenaica (Tobruk). Probably only a subspecies of the preceding.

4. Genus: **Cheligalea** *Hmps.*

C. scopariae *Dorfm.* (Vol. 3, p. 111, pl. 29 a). The species should be denominated as indicated and not *scopariae*. *fuchsiana* *Ev.* as I have already explained under that species, which is a genuine *Cucullia*. As the small species was not well illustrated, we are giving a better picture here (16 e). The asiatic localities are probably mostly referable to *fuchsiana* and at present it is impossible to give any exact particulars of the distribution of this species, which is chiefly found in Austria, Hungary and western Asia. *scopariae* is smaller and sleeker than *fuchsiana*, the stigmata are less distinctly whitish, claviform stigma entirely absent, the area behind same is not paler than the rest of the wing. A distinct posterior transverse line is always present in its entire extent. On the margin there are separate thick black marginal streaks which in *fuchsiana* form a continuous brown marginal line.

6. Genus: **Lophoterges** *Hmps.*

L. millierei *Stgr.* (Vol. 3, p. 111, pl. 28 b). The illustration in the Main Volume is not recognisable, we are giving a fresh illustration of this rare species (15 k). — **hörhammeri** *Wgnr.* has a pronouncedly brownish and not blue-grey ground colour. The reddish streak situate near the margin before the reniform stigma, is absent; the costal streak is not whitish but grey-brown, the black markings are more clearly discernible. From Asia Minor (Anatolia). Probably a transition to the subsequent *centralasiae* *Stgr.* which is more definitely a genuine species.

L. centralasiae *Stgr.* (Vol. 3, p. 112). We are able to give an illustration of this interesting species (15 k). — **aksuensis** *A. B.-H.* (15 l) is a still more pale yellowish grey form from the desert around Aksu, it varies considerably from the much darker deep reddish brown *centralasiae*.

*central-
asiae.
aksuensis.*

L. fatua *Pglr.* (Vol. 3, p. 112). This fine species was not illustrated in the Main Volume, we are now giving a good illustration (15 l).

8. Genus: **Hypomecia** *Stgr.*

H. quadrivirgula *Mab.* (Vol. 3, p. 112). We are now able to give an illustration of a typical specimen. — **jordana** *Stert.* (15 l) has much paler grey forewings, in outer marginal area there are 6—8 irregular striations that become shorter towards the top. The white streaks at anal angle are more numerous and are irregularly enwidened forming spots. Hindwings are rather less whitish and the marginal line is distinct. Underside paler. The ♀ has much more narrow and darker dusky grey forewings and dark grey hindwings. From the Valley of the Jordan in Palestine.

*quadrivirgula.
jordana.*

8a. Genus: **Allomecia** *Dumont.*

This Genus was created for a specimen described as a *Hypomecia*, differing from the preceding Genus by the ♂ antennae which have bolder serrations in place of the bipectinations of *H. quadrivirgula*. Further, the palpi are straight and porrect, not extending over the frons and differing by the blunt final segment.

lithoxylea.

A. lithoxylea *A. B.-H.* (15 l). A large boldly built species with whitish grey or ochreous yellow forewings faintly dusted with fuscous and with the veins delicately outlined in black and partially with whitish. A short basal streak is boldly black. Orbicular stigma is absent or elongated, reniform stigma is only indicated by a faint yellowish shade or is absent. Below the cell in the centre of the wing are one or two black striations, similarly in the marginal area which also has an oblique dark apical streak. Fringes with dark checks. Hindwings pure white with faintly darker marginal line. Algeria (Batna).

9. Genus: **Copiphana** *Hmps.*

gafsana.

C. gafsana *Blach.* (= *gassana* *Hmps.*) (Vol. 3, p. 112). This extraordinarily variable little species is being illustrated here from a typical specimen (15 l). — **albina** *A. B.-H.* forms a transition to the following form: forewings chalky white with faint yellowish hue, transverse lines faint and delicately indicated, the posterior line with black striations on veins, also the veins of the marginal area are delicately black. From S. Tunis.

blachieri.

— **blachieri** *Obth.* is the extreme form of the preceding with snowy white wings, only the veins are faintly and delicately indicated, the transverse markings are absent. It is found chiefly in the desert districts of Algeria

intermedia.

and Tunisia in March and April. — **intermedia** *Rothsch.* denotes further intermediate forms varying between the main type and *albina*: markings are completely developed, but paler, on paler ground.

10. Genus: **Harpagophana** *Hmps.*

hilaris.

H. hilaris *Stgr.* (Vol. 3, p. 113). This species was not illustrated in the Main Volume and we are now giving an illustration of a specimen in the PÜNGELER collection (15 l).

picturata.

H. picturata *Rothsch.* (Vol. 3, p. 113), this species should be removed. It actually belongs in the *Quadri-finae* Genus: *Metopistis* *Warr.*

11. Genus: **Metopoceras** *Guen.*

beata.

M. beata *Stgr.* (Vol. 3, p. 113). We are now able to give an illustration of this rare species (16 e).

canteneri.

M. canteneri *Dup.* (Vol. 3, p. 113, pl. 28 b). The illustration in Main Volume is quite unrecognisable, a better illustration is given here (16 f). The various species of this group require further investigation in regard to their generic classification, for instance *canteneri* would seem to belong to the *Quadri-finae* on account of its

pallidior.

bold vein 5 of hindwings that arises from centre of discocellular. — **pallidior** *Rothsch.* is the common paler form from central Algeria (Guelte es-Stel, Bou Saada) in April, May.

pilleti.

M. pilleti *Bours.* (16 f) reminds one of *felicina*, but is much paler with scarcely visible transverse lines and with black hindwings having white fringes. The still paler *delicata* has almost whitish hindwings. Thorax reddish brown intermixed with violet scales, abdomen grey. Hindwings monotonous fuscous, the small round orbicular stigma brighter than ground colour, similarly the large reniform stigma with paler centre. Between the two a faint central shade, the postmedian area inclined to be darker. Subterminal line indicated by a row of paler dots, space posterior to same a very pale violet-rose. Wing expanse: 32 mm. Syria (Valley of the Euphrates), occurring in November.

du seutrei.

M. du seutrei *Obth.* is very variable. The colour may be reddish brown, ochreous yellow or pale yellow-grey. It most resembles *felicina* which however is much less variable and has a much more robust structure. Anterior transverse line delicate, scarcely undulate, contrasting only little from ground colour. Also the central shade is barely discernible. Stigmata small, orbicular being only a brown dot. Posterior transverse line forms a distinct arc, it is fine and consists of small crescents. The subterminal line is parallel to same but less distinct. Hindwings darker than in *felicina*, widely blackish at margin. From Morocco (Mrassine), occurring from March to May.

khalildja.

M. khalildja *Obth.* (Vol. 3, p. 113, pl. 24 b). The illustration is not good, a better one is given here (16 f). The species is much more widely distributed, eastwards as far as Egypt, there the central area is much more heavily blackish than in the subsequent *gypsata*, which was described as a genuine species.

M. gypsata *Trti.* (16 f) is very probably only a form of the preceding with much heavier and more densely blackened central area, as the numerous Egyptian specimens which I have before me show the same characteristic and certainly belong to *khalildja*. *gypsata* was described as being smaller and less robustly built, the ground colour with a more roseate hue, but this latter feature also occurs in the very variable *khalildja*; these specimens with a more roseate hue are named — **roseata** *Trti.*, the black central area in these specimens is *roseata*, usually somewhat paler, more yellowish brown. Apparently there are 2 broods in the Cyrenaica.

M. albarracina *Hmps.* (= *bubaceki* *Schaw.*) (16 f) most closely resembles *khalildja* but is immediately distinguishable from same by the covering of the thorax that consists solely of hairy scales. In *khalildja* it is richly intermixed with wide spatulate scales having white dentate tips or black ends; *albarracina* is more reddish grey-brown in colouration, the arrangement of the markings is almost identical, only the dark central band usually appears considerably narrower. It however varies considerably in width and may also be quite extinct. Hindwings appear to be darker in comparison to the relatively pale forewings. Spain (Albarracín; Sierra de Alfcar near Granada).

M. morosa *Rothsch.* most closely resembles *omar* (Vol. 3, p. 114, pl. 24 e). Body brownish deep reddish grey like the forewings, these latter have yellowish spots along the costa. Anterior transverse line treble consisting of 2 black-brown lines with an intermediate orange line. Posterior transverse line dark deep reddish brown, curved, outwardly with impure yellow edge, more excurved than in *omar*. Hindwings dark grey to dusky blackish in outer third, with dark fulvous fringes. Wing expanse: 30 mm; Algeria, in April.

12. Genus: **Ammetopa** *Hmps.*

In this Genus a considerable confusion has arisen by a misconception regarding *codeti* *Obth.*, which HAMPSON had not recognised and which should be placed in the Genus: *Bryomima* with another small species for which HAMPSON particularly created his Genus *Ammetopa*.

A. codeti *Hmps.* (nec *Obth.*!). The description and illustration given by WARREN in Vol. 3, p. 114, pl. 24 c actually refer to OBERTHÜR's *Bryomima codeti*, which actually looks somewhat similar but is anatomically widely different. HAMPSON's description of his species reads: thorax white, suffused with fuscous, abdomen yellowish white, brownish black dorsally with yellowish anal tuft. Forewings white, dusted with fuscous, with faint transverse lines, the anterior one double and delicately undulate, the posterior line finely dentate, less distinct, curved in a wide arc round the obsolete reniform stigma; orbicular stigma in the form of a narrow pale ring, posterior to same an indistinct median line. Subterminal line only indicated by a faintly darker shade. Whitish hindwings dusted with brownish black, base of fringes yellowish, extremities white. Wing expanse: 26 mm. Apparently this is a very rare species from Biskra (Oued Amrah), captured in March and April, also occurring in Morocco.

13. Genus: **Cleophana** *Bsd.*

C. chabordis *Obth.* (Vol. 3, p. 114, pl. 24 e). The illustrations are relatively good. The species is common in the southern desert districts of Algeria. — *niveata* *Obth.* is a synonym to *albicans* *Stgr.* Transition forms are named by ROTHSCILD — **semialbicans**. Algeria and Tunisia; March to June.

C. baetica *Rbr.* (Vol. 3, p. 114, pl. 24 e). — **diluta** *Rothsch.* (16 f) denotes specimens from Algeria and Tunisia which are considerably paler than European races; occurring March to May. The same race is found in the Taurus (Marash). — **sardoa** *Trti.* (16 f) is the race from Sardinia with almost monotonous black-brown ground colour, the lunule spot in the cell only indicated, neither so white nor so wide as in *C. baetica*, also the white marginal raylike streaks which are less elongate. It occurs end of April. — According to ROTHSCILD a hybrid between *baetica* and *Ameophana warionis* has been captured in April at Guelt es-Stel. Markings are midway between the 2 and wing contour more closely resembles *baetica*, colour however is suffused with green.

C. pectinicornis *Stgr.* (Vol. 3, p. 114, pl. 24 f). — **youngi** *Rothsch.* has a more truncate build and darker colouration, basal half of forewings quite black; also the outer area of hindwings is much more widely dark. Morocco (Bou-Regreg); occurring in April, May.

C. opposita *Led.* (Vol. 3, p. 114, pl. 24 f). — **obscurior** *Osth.* Whilst the typical *opposita* has a pale grey basal area, specimens occasionally occur with same as darkly blackish as the median area. Transition forms also frequently occur. Described from Marash (Taurus).

C. diffluens *Stgr.* (Vol. 3, p. 115, pl. 24 f). The illustration was poor, we are giving a fresh one here (16 g). — **lusitanica** *Culot* (16 g) differs by the much darker, almost violet black-brown forewings, in some

specimens the basal half is a still deeper black, markings being very indistinct. Portugal, Soalheiras, Caldas de Manrique. — **mauretaniae** Rothsch. differs by the absence of any reddish brown tinge; whilst in *lusitanica* the entire wing is black, in *mauretaniae* the outer area is pale grey-brown, only the basal half is deeply black and the 2 shades are distinctly separated. Algeria and Tunisia in May.

versicolor.

C. versicolor Stgr. (16 g) is a completely different species and not a form of *diffluens*; it occurs next to the form *mauretaniae* of same. It is small, forewings yellowish red-brown in basal and marginal areas. Constantine, Ain Draham in Tunisia and in Algeria in March, April.

fatima.

C. fatima A. B.-H. (16 g) reminds one of *diffluens* but is differently and more brightly coloured. Small, forewings violet-grey, admixed with orange in basal and marginal areas and especially on the bold black transverse stripes. Orbicular and reniform stigmata small and black with fine white circumscriptions. Fringes checked in outer half with a distinct dividing line. Hindwings grey-white, dusted with brownish at margin, with distinct discal spot. Tunisia (Gafsa, Dehibat, Gourine, Fom-Tatahouine): *fatima* most closely resembles *vaulogeri*, it varies however considerably, whilst *vaulogeri* varies scarcely at all; the latter is a purer grey and fringes are not checked.

affinis.

C. affinis Rothsch. (16 g) is larger than *fatima* and has more extensive fuscous in the ground colour and is not so grey. Head and thorax deep brown and not yellowish white. Forewings fuscous, fringes with brown checks. The posterior transverse line is more deeply angulated especially on vein 5. The lunular streak in the centre of the reniform stigma is brown and not black as in *fatima*. Hindwings yellowish grey in basal half and not greyish white. Algeria in April, May.

banghaasi.

C. yvanii Dup. (Vol. 3, p. 115, pl. 24 f). — **banghaasi** Rothsch. is a smaller darker form with bolder black markings and almost extinct stigmata. Algeria. We are giving an illustration of — *korbi* Stgr. (16 g).

13a. Genus: **Metalopha** Stgr.

The Genus which was dealt with in Vol. 3, p. 242, under *Megalodes* is by no means identical with same, the species with the exception of *eximia* which remains under *Megalodes*, should be classified here, as on account of their general appearance and the ciliated eyes they belong to the *Cucullia*. Apart from the ciliated eyes the other anatomical characteristics agree with those of *Megalodes*, and especially the long extended 3-pointed process of the frons is characteristic.

Generic type: *M. gloriosa* Stgr.

gloriosa.

M. gloriosa Stgr. (Vol. 3, p. 242, pl. 48 i). As the illustration is too indistinct we are illustrating this fine species again (16 g). Latterly it has been captured in quantities at Marash. — **intradeleta** Ostth. the inner transverse line is extinct so that the olive-green basal area is contingent to the red median area without any dividing line. — **extradeleta** Ostth. is the reverse form, the outer transverse line is absent; in this case the outer area is unicoloured olive-green to the reddish dusted margin so that a continuous wide olive-green band extends from the median transverse line to the margin. It is only interrupted towards the margin by the whitish dusted veins. — **grisea** Ostth. are small specimens with reduced red markings and the olive-green areas also are a pale whitish grey. Hindwings pale whitish grey. Apparently this is a rare variety.

extradeleta.

grisea.

ingloria.

M. ingloria Drt. (16 h) is very similar to the preceding but the genitalia differ. A small species with dark olive-grey ground colour and only occasional traces of violet-red colouration. Thorax dark greenish grey-black, collar and tuft on metathorax flushed faintly with reddish. Discal area widely peppered with whitish. Postmedian line is less oblique and at the inner margin it turns outwards. Stigmata are larger than in *gloriosa* and with white circumscriptions on grey-green ground. Marginal veins are more heavily marked with white. Hindwings dark grey-brown with fringes of the same shade. Palestine (Jerusalem).

liturata.

M. liturata Christ. (Vol. 3, p. 243, pl. 48 k). The illustration in Main Volume is unrecognisable, we are giving a better illustration here (16 h). This nice species is also relatively common at Marash. It is found there in the day time at rest on *Salvia* plants that have a violet flower. In May and June.

M. kashmirensis Hamps. (Vol. 3, p. 243, pl. 48 k).

14. Genus: **Amephana** Hmps.

pallida.

A. anarrhini Dup. (Vol. 3, p. 115, pl. 24 g). — ab. **pallida** Schwing, is based on a specimen having pale fore and hindwings, outer half of forewings is almost white; the olive-brown markings of normal specimens are a pale brown in this form. Described from Albarracin.

dalmatica.

A. aurita F. (Vol. 3, p. 115, pl. 24 g). — **dalmatica** Rbl. is a larger darker form with wider discal area and larger black triangular reniform stigma; hindwings are darker grey with a more distinct postmedian on the underside. Described from Dalmatia.

15. Genus: **Omphalophana** *Hmps.*

O. antirrhini *Hbn.* (Vol. 3, p. 115, pl. 24 g). — **asiatica** *Osth.* (16 h) is smaller, more frail and much *asiatica*, paler than the austrian type race. Base and marginal areas more whitish, central area narrower and with blackish dusting, thus rather more prominent. Marash (Taurus); still more extreme whitish specimens from Konia.

O. durnalayana *Osth.* (16 h) most closely resembles *antirrhini*, but it has more elongate and narrower *durnalayana* forewings with more pointed apex. Forewings pale whitish grey-blue with darker grey central area and with olive-yellowish interspersions at margin. The anterior transverse line is double, consisting of 4 arcs. The outer line is also double and distinct. Orbicular and reniform stigmata are paler with rather darker centres. The black marginal streaks are faint and short. Fringes pale olive-grey with white checks. Hindwings paler than in *antirrhini*, with wide grey-brown marginal band and unicoloured whitish fringes, without checks. From Marash (Taurus), April to June.

O. serrata *Tr.* (Vol. 3, p. 116, pl. 24 g). — **pallidior** *Rothsch.* is larger and much paler, ground colour *pallidior*, is inclined to grey-white with ashy grey marginal area and long white rays. Algeria and Tunis.

O. pauli *Stgr.* (Vol. 3, p. 116, pl. 28 b). The illustration in Main Volume is unrecognisable, we are *pauli*, giving here a better illustration of this easily distinguishable small species (16 h).

O. adamantina *Blach.* (Vol. 3, p. 116). We are now illustrating this nice species (16 h).

adamantina.

O. anatolica *Led.* (Vol. 3, p. 116, pl. 29 b). The illustration was poor and we are giving a better one *anatolica*, here of an italian specimen.

16. Genus: **Calophasia** *Steph.*

C. acuta *Frr.* (Vol. 3, p. 116, pl. 29 b). The illustration was much too dark and also not good in other *acuta*, respects and is now replaced by a better one (16 i).

C. lunula *Hufn.* (Vol. 3, p. 116, pl. 29 b). — **atrifascia** *Rbl.* has much darker central area, that gives the *atrifascia*, impression of being a black band. — **nigrata** *Kiefler* (= *melanotica* *Strd.*, *atrivestis* *Dhl.*) are very large speci- *nigrata*, mens with heavily blackish ground colour, which submerges the markings. These are common everywhere. — **stempfferi** *Bours.* is a somewhat similar form, also of generally grey-black colouration, without any yellowish *stempfferi*, or brownish tone, all markings diffuse, only the claviform stigma distinct as a dainty black longitudinal streak having a somewhat whitish edge outwardly. Both transverse lines are only indicated at inner margin, the ground colour between them being a shade darker. The subterminal sagittate marks are quite absent, only an oblique apical shade is visible. East Pyrenees captured at an altitude of 1700 m. — **cana** *Dhl.* with very *cana*, pale, white-grey ground colour with a tinge of bluish and pale olive-grey markings, all shades soft and appearing almost unicolourous. Hindwings pale with wide marginal band and sharply outlined anterior edge. Central Italy, Transylvania, as an aberration also from the S. Tyrol. — **bilunulata** *Warn.* has besides the white reni- *bilunulata*, form stigma, also a brilliantly white orbicular stigma with black surround. The basal area is heavily suffused with white. Described from the Ussuri territory (Bikin), but also occurring as an aberration elsewhere.

C. kraussi *Rbl.* (Vol. 3, p. 117, pl. 24 g). The illustration leaves a lot to be desired and a better one *kraussi*, is given here (16 i). The species is very variable in general colouration: — **brunnea** *Rothsch.* is like the type, *brunnea*, but completely suffused with brown. — **albo-ochracea** *Rothsch.* are whitish specimens with ochreous reddish *albo-ochracea*, markings. — **intermedia** *Rothsch.* (16 i) is intermediate between the type and *albo-ochracea*. — **maozim** *Culot* *intermedia*, (16 i) denotes extreme specimens of the latter form, almost completely white. *kraussi* is quite common in *maozim*, Algeria and Tunisia from March to May.

C. almoravida *Grasl.* (Vol. 3, p. 117, pl. 28 b) also occurs in Sicily and Sardinia. The illustration was *almoravida*, a bad copy, we are giving a better picture here (16 i). — **nigrella** *Trti.* is the sardinian form, somewhat smaller *nigrella*, than type, darker grey with darker markings, somewhat corresponding to the form *olbiena* of *platyptera*.

C. hamifera *Stgr.* (Vol. 3, p. 117, pl. 29 b). — **chleuha** *Le Cerf* is somewhat larger, black markings *chleuha*, more precise and complete, expanding in central area to upper wall of cell; at the inner edge there is a fine black line, angulated at lower wall of cell, at outer edge a black central line. In same is the white elongate orbicular stigma, also the reniform stigma in grey ground with sharply black inner edge. Apex subdivided by a black streak. Marginal area above vein 2 black. Central Atlas.

C. platyptera *Esp.* (Vol. 3, p. 117, pl. 29 b). — **signata** *Costni.* is a darker, more clearly marked form. *signata*, The markings appear more shaded and partially diffuse. Mte Gibbio, in May. — *platyptera* occurs in 3 generations in the Taurus (Marash), of which each successive brood is paler than the preceding one. This would seem to confirm the opinion that *subalbida* is the summer brood.

- barthae.* **C. barthae** Wgnr. is like *platyptera* and especially the *subalbida* form of same and *hamifera*, but it is more sleekly built and the dark shade at anal angle and along inner margin is completely absent. Forewings uniformly pale grey. In apical area below the point there are 2 short black longitudinal streaks and 2 longer ones below the centre with a similar basal streak. Only the orbicular and claviform stigmata are finely outlined by black, reniform is absent. Fringes whitish with dark checks. Hindwings grey, darker at margin with faint central spot. The species is no doubt a transition to the following three species, which all closely resemble one another. Wing expanse (according to the illustration): 27 mm. Described from 2 specimens from Akshehir (Anatolia).
- stigmatica.* **C. stigmatica** Rothsch. (= *pintori* Trti., *volmeri* M. Hering) (16 i). A smaller species related to the preceding. Body and forewings whitish blue-grey with 2 black basal streaks. Both transverse lines indistinctly double. The stigmata somewhat paler than the ground, especially the claviform stigma, with fine black surrounds. The orbicular stigma is elongated. In marginal area an oblique shadowy stripe at apex, below same above centre of margin, a second longer oblique shade, having a faint whitish outer edge, both these shades traversed by black longitudinal streaks. All marginal veins delicately black. Hindwings opalescent, grey-white with dark marginal band. Algeria and Tunisia, also occurring in Cyrenaica, but apparently rare everywhere.
- danieli.* **C. danieli** Le Cerf is very like *stigmatica*. Forewings ashy grey, paler at base and terminally; darker in centre. Anterior transverse line double, consisting of 3 irregular arcs, the posterior one angulated, indistinct between costa and vein 4 and only consisting of black streaks on veins; in lower half distinct and black, duplicated by a diffuse outer shade. There is a parallel central shade inwardly of same. Orbicular stigma small, longish, reniform stigma larger, outwardly concave, with brownish centre. All three stigmata with delicate black surrounds. Veins 1 to 4 are faintly blackened, between veins 6 and 7 a bolder sagittate streak. In the interstices there are delicate marginal sagittate marks and 2 oblique subterminal shades between 1 and 3. Hindwings pale yellowish grey, darker at margin. Wing expanse: 26 mm. Marakash.
- liberatii.* **C. liberatii** Trti. (16 i) belongs to the same group but is smaller. Forewings monotonous ashy grey, the black markings being less prominent and very delicate. Reniform stigma very small with pale centre and dark central dot. Orbicular stigma also small and claviform is somewhat paler grey with a thin black basal streak anteriorly. Below the apex is an oblique row of black intercostal sagittate marks, submarginally near anal angle there are further black sagittate streaks. Hindwings dark smoky grey, still darker in ♀, with whitish fringes. Wing expanse: 19—20 mm. Bengasi (Cyrenaica) in February.
- biroi.* **C. casta** Bkh. (Vol. 3, p. 117, pl. 29 c). In — ab. **biroi** Aigner basal area of forewings is whitish grey and the central shade extends towards the apex. Hungary. — **castior** Sldr. has basal area of forewings white, but otherwise the white colouration is also extended and the brown is heavily interspersed with white. Marginal band of hindwings is very narrow, especially in ♀. Spalato.

16a. Genus: **Pfeifferella** Osth.

This forms a transition to the subsequent Genera owing to the completely absent proboscis. Clypeus smooth; palpi very short, straight and porrect, with dense hairs on underside; ♂ antennae very elongate, bipectinated from two-thirds length of costa to tip, in ♀ serrate ciliate. Thorax and body sleek with coarse hairs, in the ♂ with bold anal tuft, in ♀ with somewhat protruding ovipositor, the first abdominal segment with loose crest. Tibiae without spurs. The neurulation does not vary from the usual arrangement, on hindwings veins 6 and 7, frequently also 3 and 4 with short stalks. Apart from the absence of the proboscis, it does not vary from the Genus *Bombycia* and it is very similar to *B. chrétieni*. Only 1 species:

- gracilis.* **Pf. gracilis** Osth. (16 i). Forewings whitish silvery grey, the costal area from base to apex, including the stigmata, rather darker grey. Transverse lines are absent or only very faintly indicated. The stigmata brownish white with delicate black surrounds, reniform stigma of rectangular shape. On costa there are a few blackish striations and between them small white costal dashes in the outer one-third. Veins in marginal area and marginal line delicately black. A somewhat oblique bold black streak above anal angle. Fringes whitish at base with dark grey tips, white at extremities of veins. Hindwings pure white in ♂ with fine black marginal line; grey in ♀, widely dusky at margin. The ♀ has a somewhat reddish brown tinge on the rather darker wings, more especially between the stigmata. Described from Marash (Taurus), occurring in September and October.

17. Genus: **Leucochlaena** Hmps.

- hör-*
hammeri. **L. hörhammeri** Wgnr. most closely resembles *fallax* Stgr. (Vol. 3, p. 118, pl. 28 b) but is immediately distinguishable by the complete absence of the wide white subterminal line in marginal area of forewings. The other white markings merge in the blackish grey ground colour. Claviform stigma is rather darker than

ground, whilst in *fallax* it is paler. Reniform stigma is narrower and not extended along mediana. Hindwings pure white, sometimes faintly dusky at margin. Captured at Akschehir in Anatolia in September.

L. oditis *Hbn.* (Vol. 3, p. 118, pl. 29 c). This species has meanwhile been subdivided into quite a number *oditis*. of different species. Firstly *hispidus* *Hbn.-G.* is to be removed from the synonyms; *oditis* is a genuine species; it is smaller than *hispidus*, with brown forewings, veins, transverse lines and stigmata yellowish white to ochreous yellow; hindwings grey-white, dusky at margin, somewhat darker in ♀, discal lunule and postmedian band indicated. As the illustration does not represent the type, we are giving a correct illustration here (16k). Nothing definite can yet be said as to its distribution, owing to the confusion prevailing regarding all the forms of these allied species. It is certain however that *oditis* is the only form occurring in England. The form — **argentea** *Tutt* is deeper brown, veins and transverse lines pure white, only stigmata somewhat more *argentea*. yellowish, the outer transverse line inclined to be grey, the wide outer line, that is parallel to margin, is again pure white. — **pallida** *Tutt* also belongs to *oditis*. It is pale grey, somewhat dusted with brown, costal *pallida*. area yellowish white. Hindwings white with scarcely any darkening at margin. — **obsoleta** *Tutt* has darker *obsoleta*. grey-brown forewings, the markings are reduced and faint. All these forms are from England. — **intermedia** *Tutt* (16 k) is the continental form from France, Spain, Italy etc. It is distinguishable by its less bluish brown ground colour. It is usually larger with wider wings and generally less contrasting markings. The orbicular stigma however stands out prominently pale.

L. hispidus *Hbn.-G.* (16 k) is a different species. It is larger, wings are wider, orbicular stigma more *hispidus*. prominently yellow-red. The pale veins are narrower. The subterminal area is scarcely paler than marginal area, whilst in *oditis* it is distinctly paler. The white submarginal line often gives the impression of being undulate, whilst in *oditis* it is always quite straight. Hindwings usually purer white, in ♂ with more distinct subterminal band, in ♀ a postmedian line is generally more distinct. — **purpurascens** *Trti.* has a deeper black- *pur-* brown ground colour, faintly suffused with rose, veins and transverse lines scarcely prominent, stigmata with *purascens*. delicate white surrounds. — **rufescens** *Trti.* on the other hand is fuscous, no rosy hue, stigmata and subterminal *rufescens*. area a rusty brown, veins and transverse lines reddish brown and not white, only the subterminal line remains white. To this must be added: — **hispanica** *Warr.* placed in the Main Volume to *oditis*, it is a somewhat smaller *hispanica*. rather paler brown form with all lines, veins and stigmata ochreous yellow, instead of white. — **blanca** *Ribbe* *blanca*. is much paler in general colouration, the stigmata and lines similarly are not white, but yellowish, hindwings pure white. Andalusia. Also here nothing definite can be laid down in regard to the distribution. It certainly occurs in Spain, Sicily (especially in the forms *purpurascens* and *rufescens*) and N. Africa. — **jordana** *Stgr.* is *jordana*. a further form, it is smaller with almost pure white hindwings. From Palestine (Valley of the Jordan).

L. seposita *Trti.* (16 k) is a further genuine species. Forewings black-brown, veins and transverse lines *seposita*. grey, diffuse, the subterminal line consisting of yellowish white lunules, anteriorly to each of which there is a black cuneiform mark. The surrounds to stigmata are yellowish white. The grey fringes are intersected by white at extremities of veins. The transverse lines converge more closely than in the other species towards the inner margin and the pale inner marginal longitudinal streak is practically absent. Hindwings are greyer and the inner margin more definitely hairy, rather paler towards base. Posterior to discal spot there is a central line, that is parallel to the one at margin. From Sicily (Nicolosi). — **rhodina** *Trti.* from Calabria, *rhodina*. Cosenza is more suffused with rose and therefore the colours appear richer. Veins and markings are deeper yellowish white and not so grey.

L. turatii *Schaw.* (16 k) appears to me to be a genuine species. It is probably closest to *seposita*. Ground *turatii*. colour is darker, black-brown, only the orbicular stigma is somewhat yellow. Hindwings are much darker, often having a straight dark transverse band. Underside, especially of forewings, is much blacker. From Corsica (Evisa and Vizzavona).

L. machlyum *Trti.* (16 k). This is a smaller, more gracefully built species of uniformly pale brown *machlyum*. ground colouration, but with darkened central area between stigmata and inner margin, in which all the pale veins are absent. The stigmata are purer white with fainter centres. Reniform stigma wider and inclined to be rectangular. The outer transverse line is less sharply dentate, subterminal line is formed of white lunules as in *hispidus*. Hindwings not pure white, but brownish. — **luteosignata** *Trti.* is a form with yellowish stigmata *luteo-* and subterminal line. Apparently widely distributed in Algeria and deemed by ROTHSCHILD to be *hirsuta*. *signata*. Also occurring in Cyrenaica (Berca).

L. rosinae *Bhtsch.* (16 l) has narrower wings with more oblique margin, coarsely scaled, brownish grey, *rosinae*. both transverse lines sharply dentate, stigmata faintly paler, ground colour dark grey-brown before and beyond the orbicular stigma. Subterminal line irregularly dentate with anterior blackish sagittate streaks. There are small black triangles before the white marginal line. Fringes intersected by pale patches. Hindwings pale brownish grey, almost whitish with discal spot and blackish marginal line. From Russian Armenia (Kulp) and bred from larvae by Mrs. ROSINE KORB.

L. rasilis *Drl.* (16 l) is very close to *rosinae*. Head and thorax pale brownish, abdomen somewhat paler. *rasilis*. Forewings pale brown, densely speckled with brown, darkest in central area. Transverse lines black, the post-

erior one irregularly dentate, forming a bold arc round the reniform stigma, touching the lower angle of same and then extending almost vertically in 3 small dentations to inner margin. Stigmata white with fine black surrounds and brown centres, the reniform stigma is almost rectangular. Marginal area pale brown with pale grey dusted veins. Subterminal line very irregularly dentate, parallel to margin and with grey inner edge. Bold black triangular marks along margin. Fringes outwardly with checks. Hindwings whitish, peppered with grey-brown towards margin, with brownish marginal line and whitish fringes. Palestine and Syria.

18. Genus: **Ulochlaena** Lcd.

hirta. **U. hirta** Hbn. (Vol. 3, p. 119, pl. 29 d). The illustration is rather clumsy and colours too dark. We are giving a better illustration here (16 l), also of the wingless ♀.

19. Genus: **Derthisa** Wkr.

sareptana. **D. sareptana** Alph. (Vol. 3, p. 119, pl. 29 e). The illustration was a copy from HAMPSON, which does not truly represent this species, that is very like *lederi*. We are giving a fresh picture here (16 l). During the last years this species has been captured in quantities by FRITZ WAGNER at Akshehir, where it comes to light at night at end of September/October. The ♀♀ fly at dusk, the ♂♂ only at dawn. It is subject to great variations. The colouration of forewings varies from yellowish or pale reddish sandy to bold deep fuscous. — *rubellina*. **rubellina** Wgnr. is a red form, somewhat of the shade of *Antitype argillaceago*. The distinctness of the markings also varies as in *lederi*. The dark thorax is not so characteristic, as stated in Main Volume, as the constricted orbicular stigma, the lower half of which is situate below the mediana.

trimacula. **D. trimacula** Schiff. (Vol. 3, p. 119, pl. 29 c). This is rather a difficult species, it seems to embrace two species, which are not easily distinguishable. *trimacula* is larger on the average and is more robustly built with darker grey-brown hindwings. The dark undulate marginal line, which is absent, according to ZERNY, seems nevertheless to occur equally frequently in both species, if I may judge from the large number of specimens before me. The genitalia differ from those of *ramburi*. *trimacula* is exceedingly variable. The forms enumerated in the Main Volume probably all refer to *trimacula*, excepting *gruneri*, which should be placed to *ramburi*, unless it should prove to be a genuine species. According to CULOT the type is the yellowish or reddish blue-grey form with the blackish grey patch between the stigmata. — *tersina* Stgr. is ashy grey with 2 black patches before the orbicular and reniform stigmata (16 l). — *dentimacula* Hbn. (17 a) is dark grey-black, the orbicular stigma has a single cuneiform projection below the mediana, whilst below reniform stigma there are 2 such projections. — *hispana* Bsd. (= *meridionalis* Calb.) is similarly marked, but paler lilac grey. — *ruscinonensis* Obth. (17 a) also similarly marked but much paler, especially hindwings. — *cinerascens* Obth. is quite pale yellowish grey, whilst — *unicolor* Dup. (17 a) is more reddish brown, both completely devoid of markings. — *alba* Fdz. (17 a) is a pure white form with markings merely indicated and dark hindwings. — *culoti* Ragusa is a deep red form, quite unicoloured and almost devoid of markings. Navarra. Probably the same as the subsequent *teriolensis*, which would then become a synonym. — *teriolensis* Hartig (17 a) is such a rich deep red-brown that the black markings almost merge in ground colour. This is the most extreme of the red forms. South Tyrol, but I also have a specimen from Chodau (Bohemia). — *griseoviolacea* Wgnr. is a peculiar violet-grey with reddish fringes, markings although only indicated as in the usual red forms, classified as *glaucina*. S. Dalmatia. — *lilascens* Schaw. is probably very like the former, ground colour a nice pale grey-lilac, stigmata and veins reddish, fringes of forewings rufous. Generally also there are interspersions of rufous scales, especially towards base. Hindwings grey with whitish grey fringes. Albarracin. — *flavosignata* Trti. is a form of the above mentioned rufous *glaucina*, which has stigmata finely but definitely outlined by yellow. From the Apennines of Modena, also from around Como.

ramburi. **D. ramburi** Zerny (= *hispana* Rbr. nec Bsd.) (17 a). This is the second species, rather smaller and more daintily built, with paler and purer white hindwings and different genitalia. To be classified here are: — *elvira* Schaw. with pale ochreous yellow, reddish dusted forewings, orbicular and reniform stigmata with red surrounds, reddish fringes and a row of red dots before margin, anterior to which there is a rufous transverse line. Hindwings pale yellowish white with rosy fringes. Albarracin. — *osseata* Culot (17 b) is a pale yellow form with small brownish patches before and beyond the orbicular stigma. — *gruneri* Bsd. (= *albida* Obth.) (17 b) is pure white with 2 brown cell spots. — *rubrescens* Culot is almost devoid of markings and a pale cinnamon brown form. All these forms are found especially in N. Africa (Algeria and Tunisia).

haemapasta. **D. haemapasta** Hmps. Thorax fulvous, abdomen inclined to buff. Forewings yellow-white, dusted with fulvous, bright red in basal area with a dark streak along inner margin. The blackish antemedian is faintly undulate, the cell deep red between and beyond the stigmata. The stigmata yellow-white with red centres and laterally edged by black, both of the same shape as in *trimacula* i. e. extending below the cell. The black posterior transverse line somewhat dentate. The white subterminal line has a deep red inner edge

towards the costa. On the margin there is a row of dark brown lunules. Extremities of fringes dark brown. Hindwings yellow-white. Wing expanse: 36 mm. Tripoli, Cyrenaica.

D. lederi *Chr.* (Vol. 3, p. 119, pl. 29 f). Like the preceding species, this is also very variable. The *lederi*. illustration in Main Volume of the ♂ depicts a transition to the paler reddish grey form — **discors** *Stgr.*, of *discors*. which we are now illustrating a typical ♀ (17 b). The correct type form, which would correspond to the original description, we are illustrating (17 b) and we are also giving a picture of — **concors** *Stgr.* (17 b) the almost *concors*. unicolourous yellowish white form that is devoid of markings. All these forms occur commonly at Marash. — **bistrigata** *Obth.* from the same locality is a grey-white delicately marked form. It is a unicolourous white *bistrigata*. ♀ with stigmata barely indicated and only 2 distinct black transverse lines. We are illustrating a similar specimen (17 b). — **rosea** *Trti.* differs from the reddish form *rubellina*, by its cinnamon brown colouration. Berka. *rosea*.

D. amasina *Hmps.* is now indicated as occurring also at Marash, although this is not definitely certain. *amasina*. Forewings are fairly wide, dark red with bluish grey sheen and very diffuse markings. Hindwings pure white.

D. antherici *Christ.* (Vol. 3, p. 120, pl. 28 c). The illustration was bad, we are reproducing a specimen *antherici*. from the PÜNGELER collection (17 c).

D. scoriacea *Esp.* (Vol. 3, p. 120, pl. 29 f, g). — ab. **obliterata** *Trti.* has extinct transverse lines, their *obliterata*. course is only indicated by a slight paleness. Also the pale subterminal line is only indicated, ground colour is a monotonous brown, the rufous centre of reniform stigma is absent. The discal area is only slightly darker at its edges. From the Apennines of Modena.

D. korsakovi *Chr.* (Vol. 3, p. 120, pl. 29 g). Like the preceding species, this is also subject to great *korsakovi*. variation. A blue-grey form is given as the name type. Generally only the anterior of the two black transverse lines is distinct and especially prominently black anterior to orbicular stigma. The posterior line is either absent or merely indicated. However both lines may be completely absent. — **paenulata** *Chr.* is not a synonym. *paenulata*. It denotes the very pale ivory coloured form. — **transversa** *Wgnr.* is with cream coloured ground, both trans- *transversa*. verse lines rufous to dark brown and very clearly marked. Also the fringes are rusty brown. — **unicolor ferruginea** *Wgnr.* (17 c) is unicoloured yellow to fulvous, all markings more or less extinct, only the dark dot before *unicolor ferruginea*. the orbicular stigma is usually retained. Akshehir and Marash.

D. murina *A. B.-H.* has most resemblance to *korsakovi*, but is much smaller. It has much narrower *murina*. wings and a very different, monotonous grey ground colouration, sparsely speckled with black. The inner transverse line is indicated by 3 minute black dots, one on costa, one each in and under the cell. The posterior transverse line is faint and vestigial. In place of reniform stigma there is a small black transverse line. On the margin there are black dots. Fringes are somewhat paler grey. Hindwings pure white in basal half with wide clearly outlined blackish marginal band. Abdomen white. Wing expanse: 32 mm. Syr-Darja (Aulic-ata).

19a. Genus: **Catasema** *Stgr.*

This Genus, which was omitted in Main Volume, differs only very little from the preceding. Actually only through the entirely different wing contour and otherwise it corresponds anatomically with *Derthisa*, so that fundamentally it could only lay claim to being a Subgenus. Only 1 species:

C. vulpina *Stgr.* (16 h). This interesting species, the only two types of which have been kindly submitted *vulpina*. to me by Mr. O. BANG-HAAS for examination, has much more elongate wing contour with widely protracted apex and very oblique margin. Antennae of ♂ with medium long pectinations, of ♀ only simple. Colour pale yellowish fulvous, somewhat darker in ♀ with paler costal and outer marginal areas. Both stigmata small and pale. The anterior transverse line forms 3 very long pointed dentations. The posterior line is faintly curved with fine dentations and with a slightly darker inner shade. Subterminal line is almost parallel to margin. The area anterior to the faintly lighter checked fringes, is almost whitish. Hindwings darker at base than in the whitish marginal region, separated from same by a distinct dark central line. Further there is a dark sub-terminal band. West Turkestan.

20. Genus: **Oncocnemis** *Led.*

O. exacta *Chr.* (Vol. 3, p. 120, pl. 28 c). The illustration was a poor copy of an inadequate picture. *exacta*. We are giving a good illustration here (17 c).

O. mongolica *Stgr.* (Vol. 3, p. 120). This is not a form of *exacta*, but certainly a genuine species. Ac- *mongolica*. cording to BOURSIN's investigations the genitalia are different and further the hindwings and the entirely

different underside help to distinguish it. Forewings are darker but duller than in *exacta*. They are more suffused with brownish and the white postmedian band is indistinct. The subterminal line is clearer in consequence of the paler marginal area. The impure white hindwings have a wide dull blackish outer margin and they are not darker in basal area. From Uliassutai in Mongolia.

nigricula. **O. nigricula** Ev. (Vol. 3, p. 120, pl. 28 c). This species also cannot be recognised by the old illustration. We are giving a better one here (17 c).

strioligera. **O. strioligera** Led. (Vol. 3, p. 121, pl. 29 c). The same applies to this species and we are illustrating same afresh (17 d).

20a. Genus: **Cerapoda** Smith.

This Genus has hitherto only comprised 2 north american species, whilst now an egyptian species is added to it. Proboscis developed, the oblique palpi with long hairs on underside, frons smooth. Antennae of ♂ serrate, ciliate. Thorax scaled, with tufts anteriorly and posteriorly. Abdomen with crest on first segment. Tarsi with long curved spurs on outer side of the two first joints. Wing contour narrow with somewhat protracted apex. Neuration does not vary.

Generic type: *C. stylata* Sm. from North America.

aegyptiaca. **C. aegyptiaca** Joan. (17 d). Forewings pale ashy grey, almost white in subterminal area, yellowish red behind the reniform stigma and submedian, as well as in the stigmata. Transverse lines only very faintly indicated or quite absent. Altogether all markings are somewhat diffuse. The medium large stigmata have faintly darker centres. Before the more distinct yellowish subterminal line there are pointed dark sagittate marks, the marginal area beyond same is deeper ashy grey. Fringes are widely intersected by paler patches. Hindwings white. The larva is green with violet-red dorsal stripe. It feeds from January to March on *Zilla myagroides* and buries in the sand, hiding during the daytime. It pupates in a tough cocoon and the imagines emerge in November/December. From Cairo and Heliopolis.

22. Genus: **Brachionycha** Hbn.

linstowi. *B. sphinx* Hufn. (Vol. 3, p. 121, pl. 29 g). The illustration is too brown, the species is generally much greyer. — ab. **linstowi** Strd. has subterminal line in dentations extending to margin and forming a white patch at anal angle. Outwardly the dentations are filled with black. Saxony. — ab. **testacea** Hch. has a buff-yellowish ground colour instead of the white-grey. Subterminal line is retained and distinct. Berlin. — **obscura** Hirschke *alpina*. is a very dusky form from around Vienna. — **alpina** Seifers is a much larger and stronger race from the Dolomites. All markings, especially those of forewings are bolder. Hindwings with patches in the interstices. — *megala*. **megala** Dhl. which was described later and which is from the S. Tyrol, is probably the same. These are strikingly large grey specimens without the yellowish brown hue, with very dusky hindwings and often exceeding the largest *nubeculosa* specimens in size.

eugraphomena. *B. nubeculosa* Esp. (Vol. 3, p. 121, pl. 29 h). To be added to *perfumosa* Warr. as synonym: *suffusa* Klem. — **eugraphomena** Stdr. is a large robust race, dark grey, without brownish tone, with heavy and distinct black markings. From the Inn Valley. — **jezoensis** Mats. differs from type by an excurved black subbasal, dentate anterior transverse line with grey-white inner edge. The claviform stigma has a white dot at end, the inner marginal part of central area is heavily black. Orbicular stigma very small, reniform stigma very large. Between veins 2 and 3, 4 and 5 as well as 6 and 7 there is a black spot, that however does not extend to margin. Hokkaido. — **amurensis** n. subsp. (17 d) is a smaller, more brownish form with distinctly longer and denser pectinations. I have a specimen before me from Vladivostock, now in the collection of BANG-HAAS.

syriaca. **B. syriaca** Warr. (Vol. 3, p. 121, pl. 29 g). OSTHELDER states of the species, that the ♀ is more brightly marked, the colouring is more rich in contrast, subterminal line expands at anal angle forming a spot. Marash.

sajana. **B. sajana** sp. n. (17 d). Only half as large as *nubeculosa*, immediately distinguishable by the margin that is not in the least undulate. Further by the distinctly continuous marginal line, which is especially distinct on hindwings and which replaces the separated marginal spots of the precedings species. Otherwise the colouration and arrangement of markings is very similar, but the scaling is a denser black with much less white. There is a long bold black basal streak which projects into the lower part of the elongate claviform stigma. Orbicular stigma is entirely absent. Reniform stigma is smaller and is placed at right angles to costa. The black curved line is indistinct at lower edge. Transverse lines merely indicated by shades, the posterior line is much closer to margin. The black streaks on veins are absent, the sagittate marks before the margin are very prominent. Hindwings uniformly thinly scaled and blackish. The black cell spot is absent. Only 1 ♀ from Mondy (Province of Irkutsk), East Sajan. Type in the collection of BANG-HAAS.

23. Genus: **Dasypolia** Hbn.

D. mitis Pglr. (Vol. 3, p. 122). We are able to give an illustration of a typical specimen (17 d). *mitis*.

D. ferdinandi Rühl (Vol. 3, p. 122, pl. 29 i). The illustration is fairly satisfactory, but the colour should be greyer and the transverse lines less prominent. According to BOURSIN, this species, that was hitherto only known to occur at Zermatt, also occurs in France (Bessée-sur-Durance), Hautes Alpes, at an altitude of 1000 m. *ferdinandi*.

D. libanotica Drt. (17 d). This is closest to *ferdinandi*, but the ground colour is ochreous yellowish with a tinge of vermillion. Forewings are sparsely speckled with grey-blackish and whitish veins are dusted with grey. Anterior transverse line is vertical to inner margin, undulate and dentate, brownish grey. Posterior line is very oblique and sharply dentate. Orbicular stigma is absent, reniform stigma is a minute grey dot, that has a white speck at lower end. Subterminal line is quite faint and shadow-like, only indicated by the interspersation of a somewhat denser grey. Hindwings glossy pale yellowish grey with ochreous red fringes. N. E. Lebanon (Zahlé). *libanotica*.

D. fraterna A. B.-H. (17 e). This is a more boldly marked species. Forewings dark brownish grey, speckled with whitish. The dark dentate transverse lines have whitish edges on averted sides. Orbicular and reniform stigmata are white with faintly darker centres. Marginal area somewhat paler grey, therein the very faint and indistinct subterminal line. Towards apex there are 3 white dashes on costa. Marginal line consists of deep black streaks, which are interrupted by white on the veins. Fringes are paler, brownish. Hindwings unicolourous pale brownish grey, small discal spot and a continuous marginal line. Fringes somewhat paler. Wing expanse: 42 mm. From 1 ♀ from Karagai-tao. *fraterna*.

D. templi Thnbg. (Vol. 3, p. 122, pl. 29 i). The form — **alpina** Rghfr. from the Abruzzi (Pescocostanzo) is before me. They are fine large dark specimens. — **variegata** Trti. (17 e) is inclined to blue-grey. The transverse lines are quite black without the yellowish tinge of the nomino-type. The stigmata are more distinct and whitish. From Riga, probably an aberration, as it was captured amidst typical specimens. *alpina*, *variegata*.

D. bang-haasi Trti. (17 e) is larger than the largest specimens of *templi*. Forewings wider, more quadrate, more densely scaled and velvety. Grey-brown with olive tinge, somewhat admixed with yellow. The dentate transverse lines extend as in *templi*, but they are almost black. The dentate yellowish subterminal line has a heavy inner dark shade. The stigmata are only faintly indicated, fringes olive, yellowish on the dusky brown hindwings. In November/December in Sicily (Fieuzza). *bang-haasi*.

24. Genus: **Bombycia** Steph.

B. viminalis F. (Vol. 3, p. 122, pl. 29 i, k). — **fabricii** Strd. has basal half of forewings fulvous, — **semi-fusca** Peters. (= *seminigra* Culot) has the same part black. *fabricii*, *semifusca*.

B. chrétieni Roths. (= *emir* Obth.) (17 e). This is certainly a genuine species and not a race of *viminalis*. It is smaller with distinctly sleeker and more feeble body. Dark silvery grey, all markings much fainter and more diffuse. The black basal streak is weaker, central and marginal areas do not contrast in colour. A somewhat oblique, heavy black streak above the anal angle is prominent; also an oblique pale apical streak, both of which are absent in *viminalis*. Hindwings whitish grey in ♂, dark brown-grey in ♀. From Algeria. *chrétieni*.

B. angularis Chrét. is unknown to me. According to ROTHSCILD it may be the same species as *chrétien*. Forewings pale bluish grey, partially peppered with brown. The anterior transverse line is interrupted, touching the orbicular stigma. The posterior line is undulate, angulated in a point on vein 6, touching the lower edge of reniform stigma and the point of the claviform stigma. Thence it proceeds to centre of inner margin. The white subterminal line is very indistinct, only visible at inner angle. Orbicular stigma oval, reniform stigma small, claviform stigma very elongate. All 3 pale grey with black surrounds and brown centres. The apex is intersected by a shade. In marginal area there are black streaks in interstices and veins are finely powdered with black. The grey fringes have brown checks. Hindwings are brown, paler at base. From Gafsa (Tunisia), in March/April. The classification here is uncertain. The very reliable author described the species as a *Calophasia* next to *platyptera*. *angularis*.

25. Genus: **Hillia** Grt.

H. iris Zett. (Vol. 3, p. 123, pl. 28 d). The illustration in Main Volume is unrecognisable. We are now illustrating the main form, as well as the darker form *crasis* H.-S. (17 e). *iris*.

26. Genus: **Aporophyla** Guen.

A. mioleuca Tr. (Vol. 3, p. 123, pl. 28 d). According to OBERTHÜR and ROTHSCILD, this species should be named — **chioleuca** H.-S., *mioleuca* Tr. belongs to *Agriopis aeruginea* Hbn. (Vol. 3, p. 132); *chioleuca chioleuca* is widely distributed over Morocco, Algeria and Tunisia. — **mioleuca** Rbr. nec Tr. according to OBERTHÜR *mioleuca*.

is a small local form from Spain, ROTHSCHILD maintains that it is only a slightly darker colour aberration. The illustration in Main Volume is unrecognisable, a better one is given here (17 f).

lutulenta. **A. lutulenta** Bkh. (Vol. 3, p. 123, pl. 30 a). The many forms of this species are not yet all definitely known. The main form is not exactly perfectly illustrated, but nevertheless it is recognisable. — *consimilis* Steph. is actually much greyer, the illustration in Main Volume is much too brown, we are therefore illustrating a typical specimen here (17 f). Besides the grey colour, the nebulous, dusty grey diffuse marking is characteristic. This form occurs chiefly in S. France, Castile and in the Abruzzi, but always among the other forms. *sedii.* — *sedii* Dup. on the contrary, has grey colour, but clear and distinct markings. We are illustrating a spanish specimen (17 f). — *brunnea* Schaw. has a fulvous hue and is described from Austria. It also occurs in Italy and is common around Rome, where it often assumes an ochreous yellow colouration. This latter form, I denominate — **decolor** f. n. and am giving an illustration of such a specimen from the collection of SOHN-RETHEL (17 f).

lüneburgensis. **A. lüneburgensis** Frr. (Vol. 3, p. 123, pl. 30 b). I cannot bring myself to enumerate this as a form of *lutulenta*. I hold same to be a genuine species, even though DIEHL's examination of the genitalia showed that same are "practically" identical. The general impression differs too much, *lüneburgensis* is smaller, seems to have narrower wings and in certain districts certainly occurs concurrently with *lutulenta*. I have typical specimens from Ireland and S. France before me. Very deeply black specimens are named — *aterrima* Warn. Forewings are unicoloured jet-black with bluish sheen, the black transverse lines are reflected through. Also the thorax is jet-black, abdomen darker than in normal specimens. The white hindwings are more heavily black at margin, also those of the ♀ are deeper grey-black. From around Hamburg. The irish specimens approach this form, in them however the fine white edge to transverse lines is absent. The sheen is not bluish, but coppery. In any case both species should be most carefully investigated to determine their relationship.

ingenua. **A. australis** Bsd. (Vol. 3, p. 123, pl. 30 b, c). The illustrations in Main Volume are relatively good, except for that of *ingenua* Fr. TURATI is of the opinion that the illustration of this large and unicolourous dark grey-brown form would more likely refer to the subsequent new species. FREYER's — **ingenua** is more grey-brown with distinctly prominent markings. It is much darker than *scriptura* and probably identical with the unicolourous ashy grey *cinerea* Stgr. This latter, remarkable to relate, is described by HAMPSON as being "monotonous pale yellow" and as emanating from Morocco and therefore not corresponding to STAUDINGER's *cinerea* from Algeria. — **albidior** A. B.-H. described as from N. W. France (Bretagne) has almost pure white ground colour with bold markings reminding one of *pascua*.

cyrenaica. **A. cyrenaica** Ttri. as mentioned above, according to TURATI, this is very like the illustration of *ingenua* on pl. 30 d of Main Volume. It is a larger, robust race (wing expanse 40—42 mm). Forewings dark ashy grey with faint stigmata. Claviform stigma with brown centre, transverse lines faintly darker. Hindwings white with delicate brown marginal line, dusky in ♀, darker towards margin. The grey thorax with woolly hairs. Cyrenaica (Bengasi) occurring in November/December.

seileri. **A. nigra** Haw. (Vol. 3, p. 124, pl. 30 d, e). In regard to the form — **seileri** Fuchs it should be stated that according to PÜNGELER, this form is identical with — **aethiops** O. and should therefore be deemed a synonym.

haasi. **A. haasi** Stgr. (Vol. 3, p. 132) (17 f) is certainly an *Aporophyla* and should be classified here. Forewings are not such a deep black, but duller, more or less admixed with brown, the ♀ is usually still browner. Transverse lines are distinct, deeper black, with somewhat paler edges. The subterminal line is dissolved into paler patches, which have black sagittate marks inwardly. Stigmata distinct, reniform stigma with whitish outer edge and with whitish centre. Fringes with pale dots at extremities of veins and a pale intersecting line. Hindwings white with dark veins and marginal line. Fringes violet-brown, darker in ♀ being almost grey-black. The ova hibernate; larvae are brown, more rarely green with pale dorsal and subdorsal lines with darker edges. They have very wide white lateral lines with orange red spiracles at upper edge. Ventrally they are marbled with dark patches. They are polyphagous and pupate in the earth. The imagines emerge after 2½—3 months, thus occurring from August to October. In the day time they rest on *Juniperus thurifera* and at night come to light.

27. Genus: **Chloantha** Guen.

rangnowi. **C. solidaginis** Hb. (Vol. 3, p. 124, pl. 30 e). — **rangnowi** Stich. is the melanic extreme of *obscura* Lutz.: forewings deep black, scarcely paler at the transverse lines, with whitish reniform stigma having black centre in whitish surround. Subterminal line distinctly whitish. Hindwings pale grey-brown, dusky towards the margin. Lapland.

scannensis. **C. pulla** Hbn. (Vol. 3, p. 124, pl. 30 f). — **scannensis** Dhl. (17 f) is a characteristic form from the Abruzzi with grey-white ground colour, all the brownish black colouration is absent, only the reniform stigma still

shows a somewhat brownish yellow tinge; the dark striations are fainter and inclined to purer grey. Hindwings pure white, sparsely scaled. From Montagna Grande, occurring in September.

29. Genus: **Lithophane** Hbn.

L. socia Rott. (Vol. 3, p. 125, pl. 30 g). — **nigricans** Klem. is a much darker form, with blackish forewings. Described from Poland. *nigricans*.

L. ornitopus Rott. (Vol. 3, p. 125, pl. 30 h). — **duebenia** Strd. is an aberration from Saxony; with blackened central area, so that resemblance to *Polia serena* is created. — **lactepennis** Dadd is an english form with very white forewings and fainter markings. — **japonica** Neuburger is the east asiatic and japanese race. It is slightly smaller, has darker bluish grey forewings which are less richly marked, also paler hindwings. *duebenia*. *lactepennis*. *japonica*.

L. pruinosa Btlr. (Vol. 3, p. 125, pl. 30 h). STRAND has described 3 colour varieties: — **albidior**, whiter with faint greenish hue, — **lilacina**, lilac-grey, no greenish tinge and — **fusco-lilacina**, lilac-grey with dark brownish hue, especially in central area. All 3 from Japan. *albidior*. *lilacina*. *fusco-lilacina*.

L. lamda F. (Vol. 3, p. 125, pl. 30 i). The following is given as a form of *zinckenii*: — **sericata** Candèze uniformly silkily glossy grey-black, without any shade of bluish and without the whitish patches at the black streak markings. Hindwings darker. From Belgium. *sericata*.

L. furcifera Hufn. (Vol. 3, p. 126, pl. 30 i). — **debrunneata** Strd. has pale grey forewings with scarcely any trace of brownish. — **obscura** Lenz is a much darker grey form from Bavaria. — **mühlschlegeleri** Rangn. Forewings black-brown, basal streak, transverse lines and apex dusted with bluish grey. Reniform stigma spotted rusty yellow. Fringes of hindwings more rufous than type. From the swamps of Rokitno. *debrunneata*. *obscura*. *mühlschlegeleri*.

L. ingrlica H.-S. (Vol. 3, p. 126, pl. 31 a). — **lucida** Huene (17 g) is of much paler, almost grey-white colouration. Esthland. *lucida*.

L. lapidea Hbn. (Vol. 3, p. 126, pl. 31 b). — **ochreimacula** Rothsch. Head and thorax blue-grey, abdomen paler brownish. Forewings mouse-grey with obsolete brown transverse lines and a brown central band. In the latter, behind claviform stigma there is an ochreous brown spot. Hindwings cinnamon-brown, peppered with grey and with rosy fringes. Algeria. *ochreimacula*.

L. holophaea B.-H. i. l. ? (17 g) is like *merckii*, but somewhat smaller and more smoothly scaled. It is blue-grey with less bold longitudinal markings and somewhat paler at costa. From a specimen in the PÜNGELER collection designated by the above name. I have not been able to find a description anywhere. From Semiretshje. *holophaea*.

30. Genus: **Xylina** Tr.

X. vetusta Hbn. (Vol. 3, p. 127, pl. 31 c). — ab. **dufayi** G. d'Aldin is an unusually dark aberration in the colouration of *exoleta*, i. e. the upper third of forewings is coloured as the inner marginal third of *exoleta*, the other two-thirds are blackish. The author thinks this may be a hybrid of the two species. Chantilly (Oise). *dufayi*.

X. japonica Hoene (17 g) is an almost reddish black species in the type form. Only in and posterior to reniform stigma, there is a brown longitudinal streak, which also intersects the subterminal line. Otherwise it closely resembles *exoleta* in the markings, but the black sagittate streak between veins 4 and 5 is absent. Kobe (Japan). — **nihonica** Hoene (17 g) is without a doubt only a form of this variable species. It is much paler reddish or blackish brown, one of the specimens now before me has an almost chalky white ground colour. Subapically there is a paler yellowish red patch and in central area it is irrorated with blackish. Head and prothorax fulvous as in type form, collar with brown edges. Also from Kobe. *japonica*. *nihonica*.

X. exoleta L. (Vol. 3, p. 127, pl. 31 d). The central asiatic form — **impudica** Stgr. is now illustrated from a specimen in the PÜNGELER collection (17 g). *impudica*.

31. Genus: **Dichonia** Hbn.

D. areola Esp. (Vol. 3, p. 128, pl. 31 f). — ab. **rosea** Tutt. Freshly emerged specimens are often suffused with rose, but this soon fades when the specimens are placed in collections. — **kanei** Rbl. Forewings have an impure whitish ground colour, with the markings a brownish yellow rather than black. From Ireland. — **hyerensis** Strd. (= *modesta* Warn.) (17 h) with pale grey ground colour and stigmata delicately outlined in black, the long black arched streak below stigmata is absent, a fine black basal streak is present. S. France, Spain, Capri, central Italy. — **mustapha** Obth. is approximately the same form from Algeria. *rosea*. *kanei*. *hyerensis*. *mustapha*.

only it is slightly darker grey and markings are partially extinct. Transition forms occur in the Taurus (Marash).

33. Genus: **Dryobota** Led.

furva. **D. furva** Esp. (Vol. 3, p. 128, pl. 31 f). This species is inclined to be variable. Ground colour from pale brown to black-brown. Normally the reniform stigma is yellow in ♂, white in ♀, but inverted forms also occur *occlusa*, i. e. ♂♂ with white reniform stigma. Such specimens are named — **occlusa** Esp. (= *albimacula* Culot, *leuco-inversa* Trti.). ♀♀ with yellow reniform stigmata are called — **inversa** Osth. The species occurs in the Taurus (Marash).

34. Genus: **Meganephria** Hbn.

tancrei. **M. tancrei** Graes. (Vol. 3, p. 129). We are now illustrating a specimen of this nice species from Ussuri (17 h).

asiatica. **M. oxyacanthae** L. (Vol. 3, p. 129, pl. 31 g). A good illustration is now given of the form — **asiatica** Stgr. from a specimen in the PÜNGELER collection.

debilis. **M. debilis** Warn. (17 h) is smaller than *oxyacanthae*, having narrower and sleeker forewings. Ground colour a dull grey with faint rosy sheen and devoid of any mossy green colouration. Central area narrower and outer area therefore wider. Reniform stigma irregularly quadrate and uniformly filled with pale grey. Hindwings pale grey with shadowy central band. Underside pale silvery grey. Transbaikalia.

albopicta. **M. albopicta** Mats. appears to closely resemble the preceding. Forewings dark grey, paler at base with a black streak having a white upper edge along the submedian fold and extending in basal half from base to subterminal. Anterior transverse line black, sharply angulated in submedian. The small oval orbicular stigma is white with black edge. Reniform stigma is ear-shaped and pale grey, with a black arc on inner edge. The black postmedian has a white outer edge, near inner margin the white expands. The white subterminal line is undulate and interrupted. Hindwings dark grey, paler towards base. Wing expanse: 36—41 mm. From South Saghalin.

35. Genus: **Calotaenia** Stph.

immaculata. **C. celsia** L. (Vol. 3, p. 130, pl. 32 a). Numerous names have been given to aberrations. — **immaculata** Heinr. has no brown spots in green marginal area. — **tridentifera** Schultz the costal part of the brown central transverse stripe on forewings is missing, it forms a sharp dentation upwards. — **eximia** Schultz only has a broad costal spot in place of the central transverse stripe and it forms a dentation downwards. — **ocellata** Krul. has only a brown spot at end of cell of forewings. — **invittata** Schultz is uniformly green on forewings up to the brown margin. — **margarethae** Dhl. is a remarkable form. The brown markings of the transverse band and edges of wings are completely white with pronounced golden gloss. Hindwings also show golden sheen. Underside is devoid of markings being grey-white with golden gloss. In the S. Tyrol among the type form, which is fairly common there and paler green than the north german race. DANNEHL reports that strange to relate the *connexa*, imagines rest during the day on trees and can be disturbed in quantities from high Acacias. — **connexa** Dhl. has the dentation extending from the brown central band to such a degree that it reaches to the dot in outer area and even envelopes same in a nebulous shade and then projects towards the costa. S. Tyrol and Brandenburg.

tenuis. **C. tenuis** Warr. (Vol. 3, p. 130). This is now illustrated from a specimen in the PÜNGELER collection (17 h).

36. Genus: **Eumichtis** Hbn.

lichenae. **E. lichenae** Hbn. (Vol. 3, p. 130, pl. 32 a). The illustration was not good and we are giving a better one *aetnea*, here (17 h), also of the form — **aetnea** Trti.

canariensis. **E. canariensis** Hmps. Head and thorax black-brown, intermixed with grey-white and rufous. Collar with white and black line. Abdomen dark brown with black crests. Forewings grey-white, partially with brownish tone and peppered with black-brown. Central area dusted with dark brown. Veins blackish. A black undulate basal streak at base. The double subbasal line interfilled with whitish, similarly the double anterior transverse line. The large grey-white stigmata have black surrounds with brownish centres. The black postmedian is simple with whitish outer edge, dentate, with white dots on veins posteriorly. Towards anal angle a grey-white spot. There is rufous dusting before the white subterminal line and small black sagittate marks. Hindwings brown with dusky veins and discal spot. Wing expanse: 46 mm. Guimar (Canary Islands).

cypraota. **E. cypraota** Hmps. Head and thorax black-brown, intermixed with white. Abdomen whitish brown. Forewings white, admixed with brown and peppered with black. Central area suffused with dark rufous. The

black transverse lines are simple, white edges on averted sides, the posterior line inclined to have a yellowish white edge. The white stigmata have black surrounds, orbicular stigma obliquely elliptical, with brown centre, reniform stigma with black scales in centre. A faint oblique darker line proceeds from lower angle of cell to inner margin. Subterminal line yellowish white with small black sagittate marks anteriorly. Hindwings white, shaded dark brown at margin, with brown discal spot, postmedian and subterminal shades. Wing expanse: 34 mm. Cyprus.

E. muscosa Stgr. (Vol. 3, p. 130, pl. 32 b). As OSTHELDER has pointed out, this species was neither correctly described nor well illustrated in Main Volume. Markings are just like those of *lichenea*, the inner line forms 3 pointed arcs. Claviform stigma is not obsolete, but very distinctly marked, a short, truncate cuneiform mark with wide black surround. Ground colour varies from pale brownish to black-brown. *muscosa*.

37. Genus: **Crino** Hbn.

C. magnirena Alph. (Vol. 3, p. 131). We are illustrating a specimen from the PÜNGELER collection (17 i). *magnirena*.

C. satura Schiff. (Vol. 3, p. 131, pl. 32 b). — **variegata** Schaw. has stigmata and the large rufous anal patch coloured a pale yellowish, also the basal and premarginal dentate lines. From Kufstein (Tyrol). *variegata*.

C. schumacheri Rbl. is clearly very like *tenerifica*, if it is not in fact synonymous with same. It is very large and with wide wings. Antennae very long, bipectinated. Thorax with tufty rufous hairs like the head and forewings. The latter with 2 simple black transverse lines that converge towards the inner margin, the anterior one undulate, the posterior one with long and bold dentations. Claviform stigma absent, orbicular stigma small, elliptical. Reniform stigma large with grey-black centre and white outward edge. There is no subterminal line in the dusky marginal area. Hindwings yellow-grey with blackish grey dusting and blackish discal spot and arched line anterior to centre. Abdomen yellowish grey with reddish yellow anal tuft. Wing expanse: 48 mm. From Orotava on Teneriffe. *schumacheri*.

C. adusta Esp. (Vol. 3, p. 131, pl. 32 c). — **pavida** Bsd. was incorrectly enumerated in the Main Volume as being synonymous with *vulturina* Frr. Hitherto a correct description does not seem to have been generally made known. CULOT illustrates the type, according to which it is a smallish, unicoloured reddish brown form with delicate markings, all lines without whitish edges, the black basal streak very prominent. On the other hand the conjoining streak between claviform stigma and posterior transverse line is absent. From S. Russia. — **virgata** Tutt (17 i) has basal and subterminal areas, as well as centres of stigmata a paler reddish brown, veins still paler, sagittate marks anterior to subterminal line very distinct and large, also the marginal triangles. Scotland. — *baltica* Hering (1846) is superseded by the older name. — **vulturinea** H.-S (1845) (Vol. 3, p. 132, pl. 32 d). This is the race from eastern Europe, East and West Prussia and Brandenburg. They are large dark, deep bluish red specimens with distinct black markings and an especially bold black conjoining streak between claviform stigma and posterior transverse line. *vulturina* Frr. is also a synonym of same. The illustration in Main Volume mentioned above, does therefore not depict this form, nor does the illustration of *baltica* (pl. 32 d) which is more like *pavida*. — **septentrionalis** Hoffm. is not by any means black, but much paler, inclining to brownish yellow in ground colour, distinctly marked with clear black submedian streak. An interesting small form from Finland. — **carpathica** Kaucki is a much darker, but otherwise normally marked form from the Carpathians. — **aterrima** Costni is a small form, body and forewings deep black and highly glossy, hindwings dusky at margin. From Mte. Gibbio. — **juldussica** A.B.-H. i. l. I have a few specimens of this before me with especially protracted apices of forewings and with more oblique margins. They are somewhat paler blackish grey with a violet sheen in ground colour, very delicately marked, with transverse streak and very clear but fine white subterminal line without any trace of black cuneiform marks anteriorly. Hindwings very pale whitish with dark crescent at end of cell, postmedian and marginal bands. Juldus and Arasagungol. — *sylvatica* Bell. should be removed from here and classified as a form of *anilis*. — **moesta** Stgr. is not identical with *septentrionalis*. We are illustrating this asiatic form (17 i). — **vicina** Alph. is also illustrated (17 i). — *anilis* is to be removed from among the forms of *adusta*. *pavida*. *virgata*. *vulturinea*. *septentrionalis*. *carpathica*. *aterrima*. *juldussica*. *moesta*. *vicina*.

C. bathensis Lutzau (= *pavida* H.-S. nec Bsd.) (17 k). According to PETERSEN's investigations this is a separate species. Genitalia are distinct. However from superficial characteristics it is not always easy to separate same from *adusta* and especially from *pavida*. Forewings black-brown with distinct transverse band and paler stigmata. Reniform stigma always with pronounced white centre. The black longitudinal streak in cellule 1 b very definite and the subterminal line is whitish and clear. Abdomen, especially in ♂, reddish. Hindwings whitish, more dusky at margin with discal spot and arched band. Baltic Provinces; Leningrad; Urals. *bathensis*.

C. usurpatrix Rbl. (= *atlanticum* Rbl. nec Baker) (17 k). A species that is somewhat like *adusta*. Forewings rufous, ante and postmedian areas paler and somewhat dusted with bluish grey. Black basal and longitudinal streak between claviform stigma and posterior transverse line. Both transverse lines indistinctly double. The upper stigmata paler with bluish grey centres. Orbicular stigma oblique and elongate. Reniform stigma wide, somewhat quadrate, with faint whitish outer edge. The brown claviform stigma is pointed. Subterminal line *usurpatrix*.

whitish with faint "W", anterior to same black or brown sagittate marks, the narrow marginal area beyond, deep brown. Hindwings grey-brown with distinct discal lunule. Fringes whitish with dark dividing line. Canary Islands.

spi osa.

C. spinosa *Chr.* closely resembles *solieri*. Forewings black-brown to rufous on upperside, sparsely peppered with grey, more densely at base and inner margin. Subterminally reddish ochre. Lines indistinct, the anterior one oblique, undulate, edged by blackish lines on both sides; the posterior line dentate with black inner edge. Orbicular and reniform stigmata ochre-grey with dainty black surrounds, the latter with a grey-white outer edge. Claviform stigma brown or reddish ochre with black surround and conjoined with the posterior transverse line by a black streak. A black basal streak is somewhat angulated in centre. Subterminal line consists of whitish dots, anterior to which are more or less distinct rufous sagittate marks. Marginal area brown with small black marginal triangles. Fringes checked with whitish. Hindwings of ♂ whitish with brown discal lunule, veins black-brown; in ♀ brown with dark central line and marginal shade. The larva is reddish grey with brown markings on dorsum, ventrally grey-green. It has a very delicate white dorsal line and quite indistinct brown subdorsal lines. It is found under stones in winter and is polyphagous. The imagines emerge in October. Gafsa (Tunisia).

anilis.

C. anilis *Bsd.* (Vol. 3, p. 131). To judge by the latest conceptions, this seems to be a genuine species. SPRÖNGERTS and WEHRLI, who re-discovered it, have fully expressed their opinion (compare the *Stett. Ent. Z.* 1896, p. 248 and *Iris* 1924, p. 14), whilst HEYDEMANN has promised a report that will confirm their contentions. This large whitish grey moth with its wide grey median shade cannot be mistaken for any other. Markings are most like those of *adusta*. It occurs in July and as *adusta* is found almost in the same immediate neighbourhood, conspecific relationship would seem excluded. Still less can it be placed with *platinea*, the type form of which is also found at Digne. The specimens found in the Valais have all proved to be *platinea ferrea* and one can assert that *anilis* does not occur in Switzerland, but only at Digne and Venanson. We are able to illustrate a beautiful specimen from Venanson (17 i) thanks to the courtesy of Dr. WEHRLI. — **sylvatica** *Bell.* should be classified here and not to *adusta*, according to the investigations of HEYDEMANN. It is the dark island race *nera* from Corsica and we are giving an illustration (17 i). There is a special form of this: — **nera** *Schaw.* with almost completely black forewings, even the whitish stigmata and transverse lines are blackish, the white marginal is extinct. Hindwings much darker blackish. Corsica.

insubrica.

C. solieri *Bsd.* (Vol. 3, p. 131, pl. 32 c, d). — **insubrica** *Krüger* are smaller, more brightly marked specimens from S. Tyrol, pale grey contrasting with the bright reddish basal and marginal areas. Stigmata with white surrounds. Hindwings glossy white with grey checked margin. — **melanomorphia** *Trti.* (17 k) has black-brown ground colour, still darker than the darkest *bathensis*. Median area between and below stigmata, deep black. Claviform stigma and posterior transverse line conjoined by a still blacker streak. Outer margin and reniform stigma barely paler. The white hindwings have a 2 mm wide dusky blackish outer margin. Sicily (Catania) and also from Capri.

altijuga.

C. altijuga *Kozh.* appears to be nearest to *melanodonta* *Hmps.* (Vol. 3, p. 131, pl. 32 b). Forewings brown, dusted with black. Postmedian area pale brownish yellow, especially in apical area. Posterior to the pale distinct marginal line, almost as dark black-brown as the area between base and central transverse line. Reniform stigma pale brownish yellow, the indistinct orbicular stigma dark brown, claviform stigma is absent and in its place there is a black streak. Fringes dark. Hindwings dark grey with dark discal spot and postmedian band, fringes pale reddish. Wing expanse: 41 mm. Sajan mountains, in July. Probably this species is synonymous with *Sidemia doerriesi* *Stgr.* Description and a photo that have been sent to me, seem to tally exactly.

compitalis.

C. compitalis *Drt.* (= *leptitanus* *Trti.*) (17 k). This species, that was originally described as an *Eremobia*, is better classified here on account of its ciliate eyes. Forewings peppered with brownish on whitish ground, with black basal streak, indistinct transverse lines and somewhat paler stigmata, which have delicate dark surrounds and centres. From claviform stigma there is a black longitudinal streak to posterior transverse line, which however may also be absent. Subterminal line has a distinct "W" and anterior to same there are brown sagittate marks, which merge forming a subanal spot. Marginal area dark, fringes with pale intersections. Hindwings white with dainty discal lunule near the base and black marginal lunules and dark anal spot. — **letheus** *Trti.* (17 k) is probably only a nice chestnut-brown dark form of the above, at least I can find no other differences from the types kindly sent to me by the author. Berka (Cyrenaica), in November/December; Egypt, Cairo.

lama.

C. lama *Stgr.* (Vol. 3, p. 132, pl. 32 d). The illustration was poor and a better one is given here (17 k). — **dubiosa** *A. B.-H.* has pale brown colouration of forewings that inclines to reddish, whilst *lama* is grey. Hindwings darker than in *lama*, the ♀♀ have still darker, more uniformly grey-brown hindwings with distinct median line. Yarkend (Mustag-ata).

C. haasi *Stgr.* (Vol. 3, p. 132). This should be removed from here, vide Supplementary Vol. 3, p. 136 (*Aporophyla*).

38. Genus: **Agriopis** Bsd.

A. aprilina L. (Vol. 3, p. 132, pl. 32 d). — **bouveti** Luc. is illustrated (17 l). — **xantha** Schaw. has yellow-brownish instead of green colouration. Described from Digne. — **brunneomixta** Culsot is similar, all green shades replaced by yellowish brown, that seems to be spread over a pale grey ground. Known to occur near Calais and in England. — **pallida** Kaucki is a much paler form with greenish white forewings and also much paler hindwings. From a specimen bred in Galicia. — **viromelas** Slevogt denotes specimens from Courland with central area of forewings completely covered by black, only the pale stigmata remain visible. Ground colour on the other hand is very pale greenish white. — **virgata** Tutt is probably identical, here however that central black shade of forewings forms a band, perhaps it is a transition form.

A. aeruginea Hb. (Vol. 3, p. 132, pl. 32 e). — **viridistriga** Rbl. has a much wider whitish green costal patch, that is confluent with orbicular and reniform stigmata. — **mesembrina** Schaw. is a pure grey form with pale green markings. Hindwings of ♂ are pure white. Bišina.

41. Genus: **Dryobotodes** Warr.

D. accipitrina Esp. (Vol. 3, p. 133, pl. 32 g). — **major** Rothsch. A very large race occurs in Algeria, with length of forewings 21—22 mm. Otherwise colouration and markings are the same.

D. banghaasi Draes. has pectinated antennae and therefore its classification here is doubtful. It closely resembles *Polia proxima*, but has naked eyes with cilia. The inner line is simple, the outer one is more sharply angulated inwards on median fold. Claviform stigma only edged by black on top, conjoined by a black line with posterior transverse line. The large pale orbicular stigma is situate obliquely. The large reniform stigma is incurved on outer edge. Both have black surrounds. Fringes grey with pale base and dividing line. Intersected by pale patches at extremities of veins. Hindwings grey-brown, paler at base and with dark margins and pale fringes. Ta-tsien-lu.

D. roboris Hbn.-G. (Vol. 3, p. 134, pl. 32 h). — **carbonis** Wgnr. has uniformly deep black forewings in both sexes. Only around the stigmata and in marginal area are there traces of greenish scaling. From Akshehir, in October, also found in the Taurus. — **taurica** Osth. is much smaller than the main form, only as large as *Ol. strigilis*. Forewings paler, unicoloured pale grey, markings in some specimens distinct and blackish, in others indistinct, marginal area diffuse and darker. Taurus (Marash).

42. Genus: **Valeria** Steph.

V. oleagina F. (Vol. 3, p. 135, pl. 33 a, b). — **syriaca** Osth. is sleeker, with narrower wings and more pointed forewings with straighter outer margin. Reniform stigma smaller and narrower with darker centre. The dark spots at both ends are conjoined by dark dusting. — VÖLKER achieved a successful crossing between *oleagina* ♂ and *jaspidea* ♀ and denominates the hybrids — **olejaspidina** Völker. They are half-way between the parent forms. Reniform stigma has somewhat darker centre than *oleagina*, but not as dark as in *jaspidea*. Subterminal line is only faintly paler white than in the latter. Hindwings are more like those of *oleagina* but with bold discal spot. The antennae are about exactly midway between the two forms. The larvae more closely resembled the *jaspidea* larva.

V. tricristata sp. n. (17 l). A handsome large moth, that is indeed very striking by the enormous development of the metathoracic and abdominal tufts with their spatulate scales having long stalks. That on the metathorax is nearly ½ cm high! Wing contour as *jaspidea*. Forewings with brownish white ground, densely dusted with dark brown. Subcostalis, mediana, the veins of inner margin and marginal area metallic green. Both transverse lines double and indistinct, the stigmata with brownish white surrounds. Reniform stigma with pale central streak. From orbicular stigma a faint curved pale line extends to innermarginal nervure. Subterminal line also whitish, between veins 2 and 4 with 2 long dentations pointing inwards. The space between them dark brown. On margin there are black lunular marks that are enclosed by white. Fringes boldly scalloped with pale dividing line. Hindwings as in *jaspidea*. One ♀ from N. E. China (Province of Nanking) in the collection of BANG-HAAS.

V. dilutiapicata Filipj. Forewings more elongate than in *jaspidea*. The tufts on metathorax and abdomen are enormously developed. The spatulate scales partially pure white. Forewings blackish brown, the black basal line only extending from costa to mediana. Transverse lines indistinct, only clearly marked on costa, the posterior line with indistinct faint edge towards the whitish brown speckled outer area in which the indistinct reniform stigma is situate. Orbicular stigma also only faintly outlined. There is a large blackish brown spot on costa outwardly of the reniform stigma; it tapers off towards the apex. Also at the anal angle there is a dark spot. At extremities of veins there are dark patches. Fringes pale brownish with dark central line, intersected by whitish at terminations of veins. Hindwings white with discal spot and wide blackish brown outer margin. Wing expanse: 37 mm. Sutshan (Ussuri).

- sauberi*. **V. sauberi** Graes. (17 l). Head and thorax white, admixed with black. Forewings whitish with olive dusting. Basal area faintly peppered with blackish, median area almost completely suffused with black. Therein the large whitish stigmata with black surrounds. Claviform stigma is particularly large and reniform stigma is protracted inwards on mediana. Dentate transverse lines are very bold, black; an oblique black streak at anal angle; subterminal line is absent. There is a black spot in postmedian area of costa having 2 white costal dashes therein. Small black marginal lunules and black dotted fringes. Hindwings blackish brown with white and brown checked fringes. Amur territory.
- dimorpha*. **V. dimorpha** O. B.-H. (17 e). The ♂ appears almost identical with *sauberi*, but ground colour is almost pure white without greenish dusting, the white colour more extensive, only the area between the orbicular stigma and subterminal line filled with black, in which the white reniform stigma is. The entire outer area is snow white with a dense black arched streak over the anal angle. Fringes white with black checks. Hindwings blackish; fringes pale with dark checks. The ♀ is completely suffused with black, only the stigmata are slightly apparent. Wing expanse: 32—34 mm. Sajon (Tunkinsk, White mountains) southwest of Irkutsk.
- viridimacula*. **V. viridimacula** Graes. (17 l) was omitted from Main Volume. It is a large species with rather narrow forewings which are moss-green, speckled with black. Median and marginal areas less intensively green, veins dusted with bluish brown. The green stigmata have black and white surrounds. Transverse lines are double, interfilled with green, the posterior one with sharp dentations which are partially very protracted. The whitish subterminal line is also dentate. Fringes brown intersected by green and with green line at base. Hindwings dark brown with ochreous fringes. — **deviridata** Strd. has median area brown, only slightly green at costa and inner margin. East Siberia (Ussuri); Japan.

43. Genus: **Antitype** Hbn.

- philippsi*. **A. philippsi** Pglr. (18 a). Forewings of pale ochreous ground colour with a vermilion reddish tinge; fairly densely peppered with black, especially in median area which is outlined by simple dentate transverse lines. Stigmata pale with delicate black centres and surrounds. Subterminal line generally rather indistinct, paler. Margin and fringes pale, the latter with slightly darker checks and dividing line. Hindwings whitish, sparsely scaled and faintly speckled with black, except for the narrow pale marginal area. They have discal lunule and postmedian band. Persia (Sultanabad).
- rosea*. **A. rosea** Rothsch. (= concolor Obth.) (18 a) has still longer pectinations to antennae than the preceding species. Forewings with ochreous reddish more or less rosy suffused ground colour sparsely peppered with blackish. Median area in some specimens rather more prominent. Anterior transverse line very indistinctly double, consisting of 3 arcs. Posterior line simple, sharply dentate with somewhat paler outer edge. Stigmata of medium size, pale like the ground colour with blackish surrounds and fainter centres. Between them there is a more or less evident central shade. The subterminal line is dentate with darkly shaded inner edge. There are bold black marginal spots and fringes have faintly darker checks. Hindwings whitish with discal spot and postmedian band that is displaced towards centre and terminates at anal angle. Algeria. — **aurora** Trti. for which the author created the Genus *Pseudopolia*, should certainly be classified here. It is a larger form that is more heavily suffused with pinky rose. Cyrenaica.
- stupenda*. **A. serpentina** Tr. (Vol. 3, p. 135, pl. 35 b). — ab. **stupenda** Wgnr. This species is generally very constant and scarcely varies at all; *stupenda* is a very remarkable variation with white ground colour, so that the colours seem to be inverted in this form. Dalmatia.
- rebecca*. **A. rebecca** Stgr. (Vol. 3, p. 135, pl. 33 c). The illustration in Main Volume is unrecognisable and a better one is given here (18 a). It resembles *rosea*, but has much shorter pectinations to antennae.
- hagar*. **A. hagar** Rothsch. is closely related to *rebecca*. Palpi and head brownish grey. Antennae boldly pectinated, orange brownish. Thorax grey-brown, abdomen paler yellowish brown. Forewings brownish yellow with 4 irregular dark grey dentate transverse lines with an indistinct grey subterminal band of sagittate marks. Hindwings pale brownish yellow with faintly darker median and subterminal bands. Length of forewings: 20 mm. From one ♂ captured at Bou Saada (Algeria) in April.
- discais*. **A. discais** Rothsch. most resembles *germana* Rothsch., but has boldly serrate antennae. Thorax reddish yellow, interspersed with grey, abdomen greyer. Forewings bright yellowish red with a wide dark sooty grey, somewhat cuneiform, mark, that almost fills the entire disc of forewings and which extends along costal area to base. This patch is edged by black punctiform lines. Subterminal band is whitish indistinctly dusted with grey. Hindwings yellowish white with a curved rather indistinct brown central line. Length of forewings: 20 mm. From one ♂ captured at Batna (Algeria) in September.
- armena*. **A. armena** Ev. (18 a) from central Asia-Minor (Tokat) and Shahkuh, is according to FILIPJEV a genuine *Antitype*, which has no connection with *Euxoa deserta*. According to the illustration it fairly closely resembles *rosea*. Markings are almost identical, colouration is pale ochreous yellowish sparsely peppered with blackish.

Hindwings paler with pronounced postmedian band, which seems situate rather closer to margin. Unfortunately nothing is said regarding the antennae of the ♂, so that I am unable to express any opinion as to its classification.

A. polymita L. (Vol. 3, p. 135, pl. 33 e). — **aithalodes** Dhl. (18 b). Instead of the olive-grey ground colour, it is almost black-olive, the dark markings deep black, white markings purer and distinct. The grey-white hindwings are paler than in type. It occurs in the Abruzzi at high altitudes over 1500 m. *aithalodes.*

A. flavicincta F. (Vol. 3, p. 136, pl. 33 c, d). — **infusata** Porritt from England, is an extreme specimen of the *meridionalis* form, that is almost completely black with whitish markings and with no trace of orange-yellow. — **enceladaea** Trti. is about half-way, it is a fairly dark grey-black form with very restricted orange colouration, whilst in *meridionalis* there are liberal orange scales. In *enceladaea* hindwings are much darker grey-black. From around Aetna in Sicily. — **sublutea** Trti. (18 a) is a form that exceeds *calvescens* in paleness. Ground colour is a pale ochreous yellow, very faintly dusted with grey and boldly developed orange markings. Transverse lines and surrounds to stigmata pale grey-brown. Algeria. *infusata.*
enceladaea.
sublutea.

A. rufocincta Hbn. (Vol. 3, p. 136, pl. 33 d, e). — **intermedia** Hartig are specimens from Tyrol that, correspond to the southern *mucida* form being deeper grey-black and without orange. — **ruforadiata** Dhl. is another form from the S. Tyrol that is dark and is especially heavily speckled and streaked with orange. — **nigrotincta** Dhl. from greater altitudes in the mountains is rather smaller. It is a dusky grey *intermedia* form with heavily black median area. According to DANNEHL *rufocincta* only turns up after midnight to sugar and light. *intermedia.*
ruforadiata.
nigrotincta.

A. chrysographa Wgnr. is much smaller and has more pointed wings than *rufocincta*, which it otherwise closely resembles. Sealing is coarser about like in *philippsi*. Ground colour grey-blue, interspersed with a nice golden-yellow at base and in marginal areas, as well as around stigmata. This yellow colouration varies in extent and may be extremely heavy or quite absent. Hindwings whitish with distinct subterminal and bold discal spot. Fringes chequered. Antennae more heavily serrate than in *rufocincta*. Genitalia are totally different from *rufocincta*. From Akshchir in October. *chryso-grapha.*

A. argillaceago Hbn. (Vol. 3, p. 136, pl. 33 e, f). — **erythra** Schaw. (18 b) are brightly marked with red; mainly from Portugal, but also occurring in Spain (Sierra de Gredos). — **nigralba** Gel. & Luc. from Landes are whitish with faint tone of ochreous yellow and with blackish markings. — **nigrella** Gel. & Luc. are similar but with heavier blackish dusting. Described from the Gironde. *erythra.*
nigralba.
nigrella.

A. deliciosa Obth. (Vol. 3, p. 136) (18 b). I am inclined to consider this a genuine species, rather than an aberration. It is always smaller, wing contour wider, but the moth is more gracefully built. The species is very variable, the upper side being almost unicolourous pinky salmon and sometimes inclining towards yellowish grey. — **pallidior** f. n. (18 b) either quite devoid of black markings, or with same most faintly indicated. Hindwings brown in ♀. Sebden, Guelt es Stel, Lambessa, in October. — **squamosa** Rothsch. (18 b) has median area peppered with black. *deliciosa.*
pallidior.
squamosa.

A. sahariensis Rothsch. (= *salmonea* Obth.). Thorax and forewings ochreous rose on upper side, interspersed with grey, especially in central area, markings otherwise like in *argillaceago*, but hindwings are not white, but faint reddish yellow with brownish outer margin and a grey posterior transverse line that runs parallel to margin. It is characterised by black palpi. The ♂ antennae are somewhat more heavily pectinated. A rare species from Biskra in December; Djebel Antar still occurring in May. *sahariensis.*

A. germana Rothsch. (= *rosinata* Obth.) (18 e). Somewhat smaller than *deliciosa*, all wings reddish, forewings a deeper rose than hindwings, heavily but irregularly spotted with deep black in median area. The posterior transverse line consists of black crescents. There are heavy black dots on the margin that is with blackish spots. Fringes rose with blackish checks and a similar dividing line. Hindwings with black posterior transverse line. From Guelt es Stel, in October. *germana.*

A. subvenusta Pglr. (Vol. 3, p. 136, pl. 33 f). The illustration in Main Volume was a bad copy, we are giving a better one here (18 e). *subvenusta.*

A. militina Pglr. (Vol. 3, p. 136, pl. 33 f). Here also the illustration was poor and we are giving a better picture (18 e), also of the ab. **nigrescens** Warr. (18 c). Both from specimens in the PÜNGELER collection. *militina.*
nigrescens.

A. dubia Dup. (Vol. 3, p. 137, pl. 33 f). — **johani** Stertz (18 e) has pale yellowish white ground colour with delicate markings and blackish dusting contrasting characteristically. Median area somewhat blackish. Hindwings of ♂ paler than in *dubia* with dark margin and distinct shaded band in centre, those of ♀ darker. Madrid. — **rondoui** Stertz is now illustrated (18 e) from a specimen in the PÜNGELER collection. — **mus** Bours. is an extreme form of the preceding, in which the bluish leaden grey colouration extends over the entire wing, so that the transverse lines are extinct. — **lutescens** Trti. has a more reddish yellow ground colour, similar to many *argillaceago*, median area is more or less interspersed with blue-grey and the pale stigmata stand out therefrom. Nervi; Albarracin. — **reisseri** Schaw. is an aberration of same which is pure ivory white, without any darker *johani.*
rondoui.
mus.
lutescens.
reisseri.

- tuna*. scales, having only 3 delicate dentate transverse lines, marginal and costal dots. Albarracin. — **luna** *Schwing*. It is doubtful which species is referred to here, size and markings agree with those of *dubia*, but there is no yellowish tone or dull gloss. Ground colour is pure grey, scaling is coarser than in *nigrocincta*. Hindwings grey-white with distinct median band. Andalusia (Sierra de Luna).
- pentheri*. **A. pentheri** *Rbl.* belongs in the group of forms around *dubia*. Antennae are similarly built. Thorax and forewings yellow-grey with 3 subbasal dentate blackish transverse lines that are very close together and that commence with dark costal spots. Basal area therefore appears the darkest part of the wing. Central area very pale, edged outwardly by a fine dark transverse line with long dentations, which projects sharply inwards between 1 and 3. The small oval orbicular stigma has distinct dark surround. In place of reniform stigma, there is only a pale spot. Marginal area nebulous and dusky at costa and above centre. At margin a line of delicate dark lunules. Hindwings grey with wide dusky blackish margin. Wing expanse: 36 mm. Somewhat resembles *Dasyst. anceps*, differing from same by the build of the antennae, more yellowish colouration and marginal row of dots. From one ♂ from the Erdshias-Dagh, captured in July.
- canescens*. **A. canescens** *Dup.* (Vol. 3, p. 137, pl. 33 g). The illustration was poor, much too dull yellow; we are giving a better picture (18 d) of a ♂ from Dalmatia and a portuguese ♀. The species is exceedingly variable. — *calida* *Trti.* is a pale, faintly reddish form with reduced markings on clear ground. Oporto; Liguria. — *asphodelioides* *Trti.* (18 d) appears more smoothly scaled, grey-blue, more simply marked. Central area frequently rather darker, the large stigmata pale and prominent. Hindwings of ♀ very dusky. Crimea; Amasia; Taurus. — *aritzensis* *Trti.* (18 d) is a very dark, blue-grey, variegated form. Hindwings very characteristic with dark grey-brown triangular cuneiform marks at extremities of veins. Aritzo (Sardinia). — *plumbina* *Osth.* are extremely dark blue-grey specimens with distinct whitish yellow markings. We are illustrating one such specimen from Marash (18 d).
- grisca*. **A. grisea** *D. Luc.* (18 d) is, according to the description, most like *canescens*. Wing contour rather elongate. Forewings leaden grey with somewhat darker fringes having white interspersions. The black anterior transverse line is oblique. Orbicular and reniform stigmata are distinct, paler grey than ground colour. The black postmedian line is clear and forms a rectangular bend. Subterminal line sharply dentate, whitish, parallel to margin. Hindwings white peppered with grey, darker grey in ♀, with grey marginal line. Thorax grey admixed with black, abdomen dark grey. Tunis (Kebili).
- illecebrosa*. **A. illecebrosa** *Pglr.* (Vol. 3, p. 137, pl. 33 g). The illustration was unrecognisable. A better one is given here (18 d).
- styriaca*. **A. xanthomista** *Hbn.* (Vol. 3, p. 137, pl. 33 h). — **styriaca** *Hoffm.* is a dark form that is a nice blue-grey with dusky black median area almost or completely devoid of yellow-red patches. Styria. — **nivea** *Dhl.* (18 e) is a very fine, pale, almost whitish form that is small and with narrow wings. All yellow is absent, in contrast to *nivescens*, which is richly spotted with yellow. The markings are a nice blue-grey, the black dentate transverse line in median area is absent. Hindwings glossy silvery white. The ♀ is rather more blackish grey, stigmata clear and only faintly shaded. Southern Abruzzi (Montagna Grande, Pescocostanzo).
- katchbergi*. **A. kalchbergi** *Stgr.* (Vol. 3, p. 138). We are now giving an illustration (18 e) of this rare little species with its dark median band.
- jonis*. **A. jonis** *Led.* (Vol. 3, p. 138, pl. 33 i). OSTHELDER reports that he captured a specimen at Marash and we are therefore able to more fully describe the species. It is smaller than *suda* with much more unicolourous, impure grey forewings, that have not got the large white reniform stigma of *suda*. The illustration in Main Volume is fairly good, but it should be smaller and the pale patches should be more heavily dusted with grey. It has also been captured in Albania (Korab) by REBEL and ZERNY.
- schimae*. **A. suda** *Hbn. G.* (Vol. 3, p. 138, pl. 33 i). — **schimae** *Schaw.* has purer whitish grey forewings with darker median band. Bišina. — **limpida** *Dhl.* (18 e) is also a paler, milky white, clearly marked form, without any brownish or yellowish hue, with a pale dull bluish grey median band with very meagre dark interspersion. Hindwings pure white, dusted with faint blackish grey in ♀. A small race from the southern Abruzzi at altitudes of 1000 to 1800 m. — **amasina** *Stgr.* should certainly not be classified with *jonis* and we are now giving a good illustration (18 e).
- subcaerulea*. **A. chi** *L.* (Vol. 3, p. 138, pl. 33 i, 34 a). — **subcaerulea** *Graes.* is now illustrated (18 e). — **caerulescens** *Hartig* is a very similar dark blue-grey. From the S. Tyrol. — **diluta** *Hartig* (= *marsicana* *Dhl.*) on the contrary is a very pale white local race, in which the markings are delicate pale grey and only the "X" shaped mark posterior to the claviform stigma is deep black. Hindwings pure silvery white. North and central Italy. — **albofasciata** *Kieffer* has dark grey forewings with a distinct pale grey dentate band which is edged outwardly by deep black. Enns Valley.

44. Genus: **Rhizotype** *Hmps.*

R. flammea *Esp.* (Vol. 3, p. 138, pl. 34 a, b). — **vividior** *Obth.* is the Algerian form, that is common at *vividior*. Lambessa and also at Tunis. It has paler grey marginal and deeper black median areas, so that the latter appears more prominent.

R. crassicornis *Obth.* (18 e) resembles *jodea*, the ♂ antennae are more boldly serrate and ciliate. Fore- *crassi-* wings with monotonous silky violet-grey marginal area, devoid of markings. No subterminal line or only vestiges *cornis.* of same. Between the transverse lines there is a fairly wide rectangular velvety black patch in lower half of median area. Hindwings with relatively large central lunule and darker marginal band. Digne; E. Pyrenees; Albarracin; Algeria. In the latter locality — **obscura** *Obth.* frequently occurs. These are very dusky ♀♀ with dark *obscura.* grey-black or red-black ground colour.

R. iodea *Guen.* (Vol. 3, p. 138, pl. 34 b). — **rubidior** *Strd.* head, thorax and forewings more profusely *rubidior.* marked with red and without the whitish colouration. France and Spain. — **schaefferi** *Obth.* is a much paler *schaefferi.* blue-grey form, the black markings are bleached to a dull grey-black. Digne and the Pyrenees.

45. Genus: **Stenostigma** *Warr.*

S. inquieta *Pglr.* (18 f) closely resembles *curva* *Stgr.*, the markings are brighter and more variegated. *inquieta.* Central area interrupted. The ♂ antennae with shorter cilia. Forewings uniformly grey with black basal streak, median area somewhat more brownish, the central lines distinct and with short dentations; they conjoin below centre, thus separating 2 patches. Orbicular stigma generally delicately extended to the small yellowish reniform stigma. Subterminal line absent, black longitudinal streaks anterior to margin and below apex a dark oblique shade. Hindwings ashy grey with paler base. Aksu (E. Turkestan).

46. Genus: **Athaumasta** *Hmps.*

A. expressa *Led.* (Vol. 3, p. 139). We are giving illustrations of this species and of the form — **ochracea** *expressa.* *Stgr.* (18 f). *ochracea*

A. sapporensis *Mats.* is, according to the description, much like *expressa*. Forewings grey-brown with *sappo-* coppery gloss. Subbasal line black-brown, anterior line double, only distinct below the median with pale grey *rensis.* interfilling, angulated on vein 1. Orbicular stigma large, round with black surround, elliptical at top. Reniform stigma also large, both somewhat paler than ground with black and pale grey surrounds. Claviform stigma large, conical, also with black surround and with coppery brown centre. The posterior transverse line double, undulate, interfilled with black-brown, extended to dentations on 5 and 6. Subterminal line yellowish brown anteriorly with coppery brown patches; posteriorly with a marginal line of black crescents. Hindwings grey with grey-brown discal spot and posterior to same a transverse line. Wing expanse: 30—34 mm. Sapporo, Kyoto.

A. siderigera *Christ.* (Vol. 3, p. 139). This species is now being illustrated (18 f) from specimens in the *siderigera.* PÜNGELER collection.

A. splendida *O. B.-H.* Forewings ochreous yellow, black subbasal and anterior transverse lines. The *splendida.* posterior half of median area, blackish, excepting for the yellow reniform stigma. Fringes yellow with black checks. Hindwings grey with darker cell spot and 2 parallel dark transverse stripes. Head and thorax ochreous yellow. Antennae bipectinated. Possibly this is only a yellow aberration of *siderigera*, analogous to the *ochracea* form of *expressa*. Wing expanse: 30 mm. A single specimen from Sajan (Munku Sardyk).

A. cortex *Alph.* (Vol. 3, p. 139). We are also able to illustrate this species and the smaller grey form *cortex.* — **corticula** *Pglr.* from specimens in the PÜNGELER collection (18 f). — *parvispina* *Tshet.* is an *Agrotidae* and *corticula.* mentioned on p. 88 of this Supplement and also illustrated on pl. 121.

46a. Genus: **Victrix** *Stgr.*

Whether this Genus, which was omitted from Main Volume, should be retained next to *Athaumasta*, is open to question. From the description, which is very scant, the 3rd joint of palpi is longer and there is no basal crest on abdomen. According to FILIPJEV, who has examined the type, the single species could well be classified under *Athaumasta*.

V. karsiana *Stgr.* Thorax and forewings impure dark grey. Orbicular stigma large; the small reniform *karsiana.* stigma is only indicated by a paler patch, at the outer edge of which there are a few dark and light dots. Both transverse lines are only faint, with slightly paler edges on averted sides. Before the fringes there is a row of black marginal dots. The veins are slightly dusted with whitish in marginal area. Hindwings impure

white. Extremities of veins and marginal line impure grey. Wing expanse: 31 mm. Armenia (Kars). There is a second specimen in the Leningrad Museum from Azkur (Transcaucasia) with somewhat darker hindwings, captured in September. According to some views this is perhaps the same as *Hypostilbia correpta* Pglr. from Uruntshi (Thien Shan), which however is certainly not a *Cucullianae*.

46b. Genus: **Hypotype** Hmps.

Is most closely related to *Athaumasta*, differing from same by the absence of tuft on thorax. It also differs from the similar Genus *Antitype* by the abdomen, which only has a crest on the first segment, whilst in *Antitype* the first 3—4 segments have crests. Only one palaearctic species:

plumbea. **H. plumbea** Stgr. (Vol. 3, p. 137). This species should be classified here and not under *Antitype*. We are illustrating a nice specimen from the PÜNGELER collection (18 g).

47. Genus: **Bryomima** Stgr.

inextrita. **B. inextrita** Pglr. (= *extrita* Hmps. n. Stgr.) (18 g). The *extrita* mentioned in Vol. 3, p. 140 belongs to *Lasiestra* (p. 112). The species that HAMPSON had in mind is a *Bryominea*. Forewings grey brownish, peppered with black. The blackish transverse lines have grey edges on averted sides. The whitish stigmata have grey-brown centres and black surrounds. Orbicular stigma obliquely elliptical, posterior to same a distinctly undulate central line. There are small black dots anterior to the indistinct grey subterminal and black marginal dots before the black and grey checked fringes. Hindwings brownish black. West and east Turkestan; Mongolia.

fuscior. **B. tenuicornis** Alph. (Vol. 3, p. 140, pl. 34 e). — **fuscior** Strd. is much more darkly peppered with dusky brownish on thorax and forewings. Turkestan.

codeti. **B. codeti** Obth. (Vol. 3, p. 114, pl. 24 e). As already mentioned under *Ammetopa codeti* Hmps. in this Supplementary Volume, WARREN's description and illustration given here refers to OBERTHÜR's species, which belongs to *Bryomima*. This latter has about the size, colouration and markings of *Met. felicina*, but has narrower wings and warmer roseate tone on thorax and forewings; see also description on p. 114 of Main Volume. W. *nisseni*. Algeria (Ain Sefra, Sebdo, Mécheria, occurring in May). — **nisseni** Rothschild. differs chiefly by the much more sharply dentate and distinct transverse lines and greyer median area of forewings. Central Algeria (Guellet es Stel) in March/April.

luteo-sordida. **B. luteosordida** Osth. (18 g) is nearest to *carducha* (Vol. 3, p. 140, pl. 34 e) but is more heavily built, the antennae with bolder cilia. Forewings pale brownish yellow, sparsely speckled with darker brown. Brownish transverse lines, the anterior one indistinct, double, the posterior one more distinct and sharply dentate. A dark central shade is indicated below the cell. Stigmata pale yellow, sometimes with darker centres; orbicular round; reniform quadrate. A double row of brownish striations on margin. Hindwings whitish, darker in ♀ with dusky margin. Taurus (Marash) in June/July.

49. Genus: **Blepharidia** Pglr.

coctilis. **B. coctilis** Drt. (18 h) was described as a form of *paspae*, but it is so very different, that it may be assumed to be a genuine species. The illustration of *paspae* (Vol. 3, p. 141, pl. 34 f) does not represent the original type, but more probably refers to *coctilis*. We are therefore illustrating the genuine *paspae* again (18 g). *coctilis* is much darker, a deeper brown to sepia-brown with paler basal and postmedian areas. Both stigmata are distinct and with narrow white surrounds and bold dark centres. Hindwings much darker grey-brown. Szechuan.

sublimbata. **B. sublimbata** Pglr. (Vol. 3, p. 141) was not illustrated in Main Volume. We are doing so now from a specimen in the PÜNGELER collection (18 h).

submarginata. **B. submarginata** O. B.-H. (18 h) is very close to *sublimbata*, but smaller and more sleekly built. The colour is a similar dark grey-brown, the transverse lines indistinct, as far as can be judged from the only types available, which are rather worn ♀♀. Chingau mountains at an altitude of 2000 m, in July.

49a. Genus: **Sugitania** Mats.

This is very close to *Blepharidia*, but has simple antennae, finely ciliate, the last segment of palpi longer, straight and projecting forwards. Frons with conical tuft, prothorax also with tuft. On forewings vein 7 arises from centre of accessory cell, disco-cellular nervure very oblique and incurved. Only one species:

S. maculifera Mats. (18 h). Forewings grey-brown, paler above mediana in costal half, with dark transverse lines. The mediana is widely velvety black-brown, conjoined with orbicular and reniform stigmata, which are of the same shade. The former is round, the latter triangular, both finely edged by yellowish. The undulate transverse lines are only visible below mediana, the posterior line has yellowish outer edge. Subterminal line is undulate, yellowish with outer black-brown shade forming spots in cellules 3—5. Hindwings grey-brown. Wing expanse: 36—39 mm. Honsho (Japan). The species closely resembles *Blepharidia costalis* Btlr. (Vol. 3, p. 141, pl. 34 f) and it is impossible to judge from the rather rough copy of HAMPSON, whether it is not identical.

51. Genus: **Dasy sternum** Stgr.

D. lea Pglr. (Vol. 3, p. 142). This was not illustrated in Main Volume and an illustration is now being given (18 h).

D. colluta Pglr. i. l. (?) (18 h) is very like *juditha* (Vol. 3, p. 142, pl. 34 i) but paler, greyer, markings sparser and less distinct, the median area wider and not so dark, stigmata barely indicated. Askhabad.

D. variabile Stertz is closest to *bacheri* Pglr. (Vol. 3, p. 143, pl. 34 i). Forewings impure ashy grey or reddish brown, paler in ♀, inclined to impure whitish grey, coarsely and densely scaled. Fringes faintly checked. Transverse lines blackish, dentate, the discal area between same faintly darker or unicolourous, narrower in lower half. Stigmata fairly large, roundish, pale but indistinct. Hindwings yellowish white with thin black marginal line and fainter central line that does not extend to costa. Antennae of ♂ with shorter pectinations than *bacheri*. Wing expanse: 34 mm. Algeria (Guelt es Stel).

D. faroulti Roths. seems somewhat similar. Thorax and forewings cinnamon-grey, orbicular stigma punctiform. Large reniform stigma white with brown inner edge. Transverse lines dark cinnamon-brown, the anterior section with 3 angulations, the posterior part boldly undulate extending obliquely inwards. Both lines edged with white on averted sides. Subterminal line white. Fringes with whitish checks. Hindwings impure whitish grey, whiter towards margin with delicate brown marginal line. Wing expanse: 44 mm. Algeria (El Messrane).

D. anceps Stgr. (Vol. 3, p. 143). We are now giving an illustration of this species, that looks just like *anceps*. *Antitype rufocincta mucida* (18 i).

D. glaux Pglr. i. l. (?) (18 i) resembles *D. tibetanum* (Vol. 3, p. 143, pl. 35 a) but has narrower wings with more oblique outer margin. Forewings slate-grey, the lines and stigmata only apparent through an interspersation of ochreous yellow. Fringes mixed with ochreous brownish. Hindwings dark grey-brown with pale yellow fringes. Central Asia (Aksu; Lob-nor).

52. Genus: **Dasy thorax** Stgr.

D. rotroi Roths. It is not quite certain whether this should be classified here. It has cinnamon-brown thorax and forewings, the latter peppered with black and with incomplete anterior transverse line that extends obliquely outwards to vein 2. The posterior line is black, curved and dentate. Orbicular stigma with black surround and centre, the large reniform stigma whitish. Subterminal area boldly peppered with black. Hindwings milky white. Wing expanse: 34 mm. Messer in Algeria, in September, based on a single ♀.

D. hirsuta Stgr. (Vol. 3, p. 143, pl. 35 b). The illustration was not good, we are giving a better one here (18 i). This very rare species also occurs in the Tyrol and according to BOURSIN it is found in France (Bessée-sur-Durance) in the Hautes Alpes at an altitude of 1000 m.

D. rasilis Pglr. (Vol. 3, p. 143, pl. 35 b) can also scarcely be recognised from the illustration in Main Volume and a better picture is given here (18 i).

D. draudti Osth. (18 i) is possibly a larger more westerly local race of *glebicolor* Ersch. (Vol. 3, p. 143, pl. 35 b). It is much larger, less olive, more grey-brown with a yellowish, reddish or greenish hue. Transverse lines more boldly dentate. Orbicular stigma absent, reniform stigma with only faintly darker centre or unicoloured. Hindwings uniform blackish grey. Taurus (Marash). According to OSTHELDER's views possibly also a form of the red *Autophila libanotica* Stgr., which with *Autophila subfusca* Chr. would also probably have been better classified with the *Dasythorax*. It would seem a difficult task to draw a definite distinctive line between these so closely related Genera. In my opinion the species is really very similar to *depressa* Pglr. described as a *Spintherops* and it is questionable whether they are not identical. The latter is from Askhabad. Description and illustration seem to tally exactly, only *depressa* is said to be a more ashen grey.

53. Genus: **Rhynchaglaea** Hmps.

scitula. **R. scitula** Btlr. (Vol. 3, p. 154). I have before me, from HOENE's collection from Japan, some 200 specimens of this exceedingly variable species. No two specimens are identical! No purpose would be served by denominating all these forms. In the type the basal streak is absent. — *kumamoto-*
lonis. **kumamotonis** Mats. has a black triangular mark basally below mediana. — *albibasis.* **albibasis** f. n. has a white patch there. Instead of giving innumerable descriptions, we are illustrating a series of the different forms (18 e). Ground colour may be whitish, grey to black, yellow, brown or dark brown, blue-grey to slate-black. Markings may be pale or dark, stigmata are sometimes white, yellow, brown or jet-black with pale or dark surrounds. Again the markings may be distinct or quite diffuse, so that innumerable variations are possible. It would indeed be possible to give thousands of denominations!

54. Genus: **Eupsilia** Hbn.

brunneor. **E. satellitia** L. (Vol. 3, p. 144, pl. 35 c). — **brunneor** Strd. a form that is very briefly described as "brown" and no reason is stated, why this specimen should be separated from *brunnea* Lampa. — *nigricans.* **nigricans** P. Schulze is a blackish suffused, probably melanic form. — *olivacea.* **olivacea** Porritt has olive-greenish ground colour. — *flavi-*
maculata. **maculata** Lenz has yellow reniform stigma and would seem to correspond to the type or the form *brunnea*. — *ochrea.* **ochrea** Lenz is a form that is paler, more ochreous yellowish in marginal area.

unipuncta. **E. unipuncta** Scriba closely resembles the preceding species, but is immediately distinguishable by a round white dot in place of reniform stigma. All the other markings in the same arrangement as in *satellitia*, but very indistinct. Hindwings dark grey. Japan.

56. Genus: **Orbona** Hbn.

conjuncta. **O. fragariae** Esp. (Vol. 3, p. 145, pl. 35 e). — **conjuncta** Hirschke has both stigmata of cell conjoined. — *canaria.* **canaria** Dhl. denotes the form that is greyer with heavier blackish interspersions. — *rubetra.* **rubetra** Dhl. is unicoloured dark brown. — *pallida.* **pallida** Dhl. is pale yellow-grey or grey-brown with almost obsolete markings.

57. Genus: **Xantholeuca** Steph.

niveata. **X. croceago** F. (Vol. 3, p. 145, pl. 35 f). — **niveata** Obth. is the form from Sebden and Lambessa in Algeria. It occurs there from November to March and is a much paler yellowish white form that occasionally has a greenish tinge and is without definite markings. — *intermedia.* **intermedia** Obth. is a transition form from S. France (Digne) and the Pyrenees, paler, pinkish with fainter markings. We are giving an illustration (18 l). — *luridago.* **luridago** Dhl. is a nice race from the S. Tyrol with ground colour between pale yellow and dull orange with nebulous markings which are paler or darker grey-blue and olive-brownish. This form is taken chiefly in the Etsch and Eisack valleys up to the Mendel region (altitude 14—1500 m).

58. Genus: **Conistra** Hbn.

eriphora. **C. eriphora** Pglr. (Vol. 3, p. 146, pl. 35 g). The illustration was not good, we are giving a fresh picture here (18 l). — *perspicua.* **perspicua** Pglr. is a much darker grey, less reddish and distinctly marked local form, resembling the rather more broadly built *veronicae*. Markings however are more distinct. From E. Turkestan (Chamil-Hami). We are also illustrating this form from a specimen in the PÜNGELER collection (18 l).

unicolor. **C. erythrocephala** F. (Vol. 3, p. 146, pl. 35 g). — **unicolor** D. Luc. is a unicolourous dark scarcely marked form from Algeria. — *lucasi.* **lucasi** Culot is a very dark glossy form with dull black subterminal dots and spots around reniform stigma. Algeria.

impleta. **V. van-punctatum** Esp. (Vol. 3, p. 146, pl. 35 h). — **impleta** Spul. has orbicular stigma with intensely black centre and reniform stigma surrounded by black dots. — *intricata.* **intricata** Dup. is a transition form to *immaculata* with reduced and faint black dots around stigmata.

acutula. **C. acutula** Stgr. (Vol. 3, p. 146, pl. 35 h). WARREN evidently has mistaken the v. *scortea* for the type form and OSTHELDER has drawn attention to this; *acutula* is the grey-black form, that has the colour of *ligula* *polita*, — *scortea.* **scortea** Stgr. on the other hand is pale grey-brown with blackish grey markings. The illustration in Main Volume therefore actually depicts a dark *scortea*, which however really should be a shade lighter. The species, that has hitherto only been found around Jerusalem, is now reported by OSTHELDER to occur near Marash (Taurus) although in a slightly varying form. Forewings grey-black with deep reddish brown suffusion and

silvery grey marginal area. The distinctly double transverse lines are interfilled with grey, as is also the reniform stigma. Hindwings white-grey, marbled with darker shades and blackish veins and 2 transverse lines. The specimens are also slightly larger (wing expanse: 32–35 mm).

C. veronicae Hbn. (Vol. 3, p. 147, pl. 35 h) is reported by OBERTHÜR to occur at Lambessa in Algeria. *veronicae*.
— **nigrovenosa** Preissecker is a form with especially prominent veins; from the Tyrol. *nigro-venosa*.

C. ardescens Btlr. (Vol. 3, p. 147, pl. 35 i). As the type form is not recognisably shown, we are giving *ardescens*.
a fresh illustration (181) of a specimen from the PÜNGELER collection. — **obscurior** Strd. is darker brown, the *obscurior*.
subterminal and the rather pale area anterior to same, is reddish ochre. Orbicular and reniform stigmata with pale centres, hindwings darker; from Yokohama: probably this form is the same as *pallidistigma* Warr., which would then have priority. — **purpurea** Wilem. is described as having crimson brown forewings, pale ochreous *purpurea*.
stigmata and submarginal band, as well as with blackish hindwings with red-brown fringes. From Yezo. This form also may well be synonymous with *pallidistigma*, a description of which was published in January 1911, *purpurea* only later.

C. nawae Mats. is a larger species. Forewings brown with reddish brown markings, dusted with leaden *nawae*.
grey in costal area, more reddish in inner marginal area. Anterior transverse line angulated on mediana with pale grey inner edge. Orbicular stigma large, indistinct, oval, elliptical at top with red-brown surround. Reniform stigma similarly with a black-brown spot at lower angle of cell. The mediana red-brown. The distinct posterior transverse line oblique with pale grey outer edge. The obsolete pale subterminal line is reddish in every interstice. Hindwings, as the forewings, with somewhat darker discal spot. Wing expanse: 40 mm. Honsho (Gifu).

C. vaccinii L. (Vol. 3, p. 147, pl. 36 a). This variable species, of which so many forms have already been denominated, has again been favoured with further names, of which many would appear really superfluous. — **fusca** Lenz a deep brown form, like *glabroides* Fuchs but without pale bands. — **mixta-grisea** Lenz *fusca*.
like *mixta* but with grey median area. — **griseescens** Obth.-Culot is extensively dusted with grey, thorax however *mixta-grisea*.
is red-brown. — **robusta** Engramelle is a reddish yellow form, markings and marginal area are rusty brown. — *griseescens*.
hübneri Culot (= *polita* W. V. nec Hbn.) is almost grey-black, veins very delicately paler, subterminal area *robusta*.
also paler. — **flavofasciata** D. Luc. forewings and thorax brown admixed with reddish or almost black with *hübneri*.
subterminal line formed of yellow dots. Algeria. — **obsкуро-spadicea** Heinr. combines the characteristics of *flavofasciata*.
obscura and *spadicea*, dark grey ground colour with black shaded bands. From around Berlin. — **caerulescens** *obsкуро-spadicea*.
Preiss. & Galv. has bluish dusting over costal area, two-thirds of inner margin of central area and around transverse lines. From the Enns valley. — **mixta-spadicea** Spul. combines the pale brown *mixta* characteristics with *caerulescens*.
the black transverse bands of *spadicea*. — **spadicea-grisea** Obth. has dark transverse bands on pale grey ground colour. Martigny. *mixta-spadicea*.
spadicea-grisea.

C. ligula Esp. (Vol. 3, p. 148, pl. 36 c) differs from *vaccinii* by the more pointed, slightly protracted apex and rather more bulging margin of forewing. Generally too it is slightly smaller. — **brigensis** Bsd. is a *ligula*.
somewhat larger form, it tends to bluish grey with rather paler subterminal area. Valais. — **pulverulenta** Culot *brigensis*.
from Collioure is a small, pale sandy brown form, a transition to *brigensis*. — **jullieni** Culot originally described *pulverulenta*.
as a species, is according to VORBRODT, certainly only an aberration of *ligula*. It differs by the posterior transverse line, which is not dentate, but which appears as a delicate parallel double line. The central shade also *jullieni*.
is not oblique, but vertical to inner margin. Described from Geneva.

C. torrida Bsd. (Vol. 3, p. 148, pl. 36 d, e). — **amaura** Schaw. costa is not paler. *amaura*.

C. rubiginea F. (Vol. 3, p. 148, pl. 36 d, e). As is the case with *vaccinii*, so also with this very variable species, a large number of forms have received new names. — **modesta** and — **completa** described as “fulvous”, *rubiginea*.
should have been described as fuscous. Actually OBERTHÜR is the author of these two forms, as he denominated *modesta*.
them 2 years before HAMPSON. — **modestissima** Obth. is quite pale ochreous yellow, the angulated central shade *completa*.
is distinct. — **fereunicolor** Obth. has rather more markings than the monotonous *unicolor* Tutt. — **delicatula** *modestissima*.
Obth. is coloured and marked as *unicolor*, but subterminal line is indicated by a row of white dots. — **favrei** *fereunicolor*.
Obth. is a *completa* form, in which there are traces of white markings. — **barettii** Obth. is an english form. *delicatula*.
in which there are scarcely any black spots on forewings, the entire marginal area of hindwings is widely *favrei*.
ochreous. — **albistigma** Dhl. are unicoloured specimens, pale yellow, fuscous or deep brown having only the *barettii*.
merest faint indication of stigmata and minute white dots on each side of centre of same. Described from S. Tyrol. — **euantes** G. M. Schultz is brick-red with creamy yellow marginal band and stigmata, spots in basal *albistigma*.
area and around the reniform stigma are also creamy yellow. Bolzano. — **elsa** G. M. Schultz has an expansion *euantes*.
of the creamy yellow colour, the brick-red shade is now restricted to the central area, sometimes even to the *elsa*.
lower half of central area. Bolzano. — **antemarginalis** Dhl. is unicoloured fuscous with blackish subterminal *antemarginalis*.
band. N. Germany (Hanover).

- rubigo.* **C. rubigo** Rbr. (18 l) is a species that is definitely distinct from *rubiginea*, as first ascertained by HENRIOT. Like *Sp. ruticilla* it is a spring species, that emerges in February and March and whilst being exceedingly similar superficially to *rubiginea*, the genitalia are different and this was first ascertained by RAMBUR and subsequently confirmed by BOURSIN. The rusty red ground colour generally extends over the entire wing, whilst the black spot markings are absent on forewings. On underside of forewings the black reniform stigma is absent, whilst in *rubiginea* it is always present; besides *rubigo* is always smaller on the average. — **joannisi** Henr. is a form that is parallel to the *graslini* of *rubiginea* in which costa, base, stigmata and subterminal areas are grey-white. Hitherto only found in S. W. France (departments of Gironde, Landes and Lot) but probably also occurring in the Pyrenees.
- cos.* **C. standingeri** Grasl. (Vol. 3, p. 148, pl. 36 e, f). — **eos** Culot has lilac grey forewings like *livina*, but central shade and fringes are a rich pale brown as thorax. — **obscurior** Culot is a glossy deep black-brown form from Vernet les Bains and also from Spain; we are giving an illustration (18 l). — **vaccinoides** Obth. is a dark chestnut brown, boldly marked with distinct central shade. E. Pyrenees.

59. Genus: **Omphaloscelis** Hmps.

- polybela.* **O. polybela** Joan. (Vol. 3, p. 24, pl. 5 b) should be classified here and not among the *Agrotidae*. The illustration in Main Volume was bad and we are now giving a better one of this interesting species (18 m).
- teukyрана.* **O. teukyрана** Trti. (18 m) reminds one rather of *lunosa* Haw. (Vol. 3, p. 149, pl. 36 h). Ground colour of type is olive-brownish with dark brown markings. Both transverse lines are double with somewhat paler interfilling; anterior line less distinct; subterminal line consists of a row of minute black dots. Both stigmata small and very indistinct. Posterior to reniform stigma is a deep dark central shade. Hindwings whitish with faint black discal spot. — **adusta** Trti. (18 m) is a very deep fuscous form with similar markings which are barely visible in the deep ground colour. Hindwings slightly dusky. Cyrenaica in November.

59a. Genus: **Eremopola** Warr.

This Genus is closely related to the preceding, but the process on frons is not semicircular, but truncate conical, triangular, cordiform with somewhat dentate edge. Antennae of ♂ with long bipectinations, thorax with hair scales, abdomen without crests. No material difference in neurulation, only on hindwings veins 6 and 7 with short stalk. One form was placed in the Genus *Grammoscelis* Hmps., which only covers one south african species *G. leueoneura* Hmps., but they are not quite identical in character. In *Grammoscelis* the antennae have much shorter pectinations, thorax is covered with wider scales and has both anterior and posterior tufts and well developed proboscis, which in *Eremopola* is rudimentary.

Generic type: *E. lenis* Stgr.

- lenis.* **E. lenis** Stgr. (Vol. 3, p. 181). According to BOURSIN's examination of the type, this is a *Cnecallianae* and should be classified here; *lenis* was originally described as a *Phoebophilus*, but has proved itself to be the type of many closely similar forms of a widely distributed species. The smallest form has ashy grey forewings, flecked with blackish, faintly suffused with brownish in basal and outer marginal areas, with whitish basal and subterminal lines and a black dentate posterior transverse line. Both upper stigmata white, claviform stigma with black surround. Hindwings snow-white with delicate black marginal line. This type is from Jerusalem (Palestine). — **marmarides** Trti. from Berka (Cyrenaica) is much larger and a bolder cinnamon-reddish but nevertheless fairly heavily dusted with ashy grey. For this form the Genus: *Libyana* Trti. was created. — **marmarides** **magnifica** Rothsch. (18 m) described as a *Grammoscelis*, is superficially very similar to the preceding form, but is perhaps a little more reddish and more variegated by the interspersation of yellowish shades. Algeria. — **radoti** Bours. (18 m) is the spanish form, for which the Genus: *Poteriophora* Bours. was created. It is slightly smaller and more dainty. There is less admixture of red in ground colour, which is more sandy brownish. Subterminal and central areas somewhat more grey-brown. Pectinations of antennae seem slightly longer. Lerida.

60. Genus: **Spudaea** Snell.

- unicolor.* **S. ruticilla** Esp. (Vol. 3, p. 149, pl. 36 i). A great number of new names have been bestowed on this small species. — **unicolor** Heinr. are unicoloured specimens with completely extinct markings, except for a dark shade at reniform stigma and the dark speck at subterminal line; it may be identical with *castanea* Warr. — **lineata** Heinr. is like *unicolor*, but has a striking wide, yellow-white subterminal line; the lower half of reniform stigma is not darker than the upper half. Described from Digne. — **dilutior** Heinr. with faint markings, occurs both in the grey and red forms. — **variegata** Dhl. denotes grey-brown specimens with wide black-brown central area and the other portions of wings more speckled and therefore this may be said to be the most variegated form.

— **rufovariegata** *Dhl.* is the same with red-brown ground. — **griseovariegata** *Dhl.* with pale grey ground. — **ornata** *Dhl.* are specimens without markings, but with a dense row of bold black-brown dots anterior to subterminal line and as a continuation of the dot on costa. The last 4 forms from the S. Tyrol. — **fuliginosa** *Stertz* are strikingly deep nut-brown specimens; forewings devoid of markings, even the dark reniform stigma is absent. A pale very fine outer marginal line is retained. From Rome and Algeria (Hammam R'hira). — **rubra** *Stgr.* i. l. are specimens of very rufous hue.

S. witzmanni *Stfs.* (Vol. 3, p. 150, pl. 36 i) is an *Agrotidae*, compare Suppl. Vol. 3, p. 88.

S. eucrinita *Trti.* There is still a doubt as to its classification and it is compared to *C. witzmanni eucrinita*. and may perhaps be an *Agrotidae*, as 2 short dainty "spine" on hind femora are mentioned, which may however have been intended for spurs. It may temporarily be placed here. Forewings impure grey; orbicular stigma elongate, obliquely oval with black surround; between same and the very large reniform stigma there is a black triangle. Both transverse lines blackish, the anterior one dentate, the posterior consisting of delicate lunules, commencing at costa with black oblique dashes. A short black streak basally below median. There are 3 distinct black sagittate marks anterior to the faint subterminal line. Hindwings impure grey, darker towards margin with whitish fringes. Wing expanse: 40 mm. Karakorum at an altitude of 4000 m.

62. Genus: **Amathes** *Hbn.*

A. tripolensis *Hmps.* is classified after *rupicapra* (Vol. 3, p. 150, pl. 36 k). Head, thorax bluish brown, admixed with grey. Forewings similarly, speckled with darker shades. Both transverse lines indistinctly double, dark and interfilled with whitish. In place of orbicular stigma a dark oblique streak. Reniform stigma a black-brown lunule. Subterminal line consists of a row of small dark spots in interstices, further dark spots on margin. Hindwings white, faintly brownish, with small blackish discal spot and obsolete subterminal. Wing expanse: 38 mm. Tripoli.

A. humilis *F.* (Vol. 3, p. 150, pl. 36 k). — **krauti** *Lax* has very pale ashy grey ground colour with heavily contrasting dark brown, almost black stigmata which are reduced in size and have wide yellow surrounds. — **rufescens** *Höfer* is heavily suffused with rufous. — **nigromaculata** *Höfer* has orbicular and reniform stigmata with black centres and seems identical with *krauti* and in such a case could claim priority.

A. lychnidis *F.* (Vol. 3, p. 150, pl. 36 k). — **silesiaca** *Schultz* has very dusky forewings, transverse lines, stigmata and veins pale yellowish, hindwings black; appears to closely resemble *canaria*. — **sobria** *Schaw.* is a rich bluish brown form with stigmata merged in ground colour. From Mostar. — **alba** *Porritt* is almost devoid of markings, white with faint rufous suffusion. England.

A. egorovi *O. B.-H.* (18 m). A nice very distinct species, somewhat resembling *scabra* *Stgr.* (Vol. 3, p. 150, pl. 37 c) pale creamy yellow with angulated olive-brown central shade and pale grey subterminal band. A blackish subbasal spot in cell. Stigmata with faintly darker surrounds, reniform stigma with black lower lobe. Hindwings white. Dagestan (Chodzhi Machi) in September.

A. lactiflora *sp. n.* (19 a) is somewhat like the preceding. Wing contour is narrower, margin more oblique. Ground colour pale bay, flecked with pale brownish. A pale brown dot subbasally in cell. Both transverse lines double, very faint pale brownish with slightly lighter interfilling. Orbicular stigma not visible, reniform stigma very faintly outlined, 5—6 minute black-brown scales, only visible with a magnifying glass, at its lower edge. A similar angulated central shade as in *egorovi*, but here it is of the same pale brownish shade. Instead of the subterminal line, which is only indicated below costa by a faint inner patch, there is a row of small black-brown dots in interstices, that expand slightly between 4 and 6 and form triangles. The delicately undulate marginal line very pale brownish. Base line of fringes somewhat paler than ground colour. Hindwings pure white with yellowish veins and marginal line. One ♂ from Diabekr in the collection of DRAUDT.

A. kindermanni *F. v. R.* (Vol. 3, p. 151, pl. 37 c). — **rufa** *Osth.* has quite deep rufous or red-brown colouration. The greenish grey ground colour is only to be seen in traces at base and on costa. Marginal area is whitish grey, fringes reddish. Hindwings unicoloured dark grey-black with narrowly fainter margin and reddish grey fringes. Marash (Taurus), also from Amasia.

A. haematidea *Dup.* (Vol. 3, p. 151, pl. 37 d). — **causta** *Trti.* is deep black-brown, only costa is still slightly speckled with grey. Subterminally there are 4 yellowish dashes on costa and a barely visible subterminal line. Hindwings grey-black with rose fringes. Sardinia. Probably this form is identical with — **atra** *Wgnr.* i. l. (19 a), of which there are specimens under this denomination in the PÜNGELER collection. It is a deep slate-black form, sparsely scaled with white on costa and with all other markings indistinct. Tunis (Ain Draham).

pallida. *A. lota* L. (Vol. 3, p. 151, pl. 37 d). — ***pallida*** *Heinr.* denotes specimens with very pale grey ground colour. Digne. — ***bipunctata*** *Wehrli* has a second black dot with brown surround, situate on mediana between *frigga*. the two stigmata. The surrounds of the stigmata are conjoined. From Thurgovia. — ***frigga*** *Skala* has a wide pale marginal band on hindwings. From upper Mühlgraben.

immaculata. *A. macilenta* *Hbn.* (Vol. 3, p. 151, pl. 37 e). — ***immaculata*** *Gaukler* has brown forewings without markings, reniform stigma with its dark dot is absent, also the reddish straight line with its whitish edge anterior to margin. Carlsruhe. — ***pallida*** *Höfer* is a form with bleached yellowish ochre ground colour in which there is no trace of rufous on upper or undersides. Normal markings otherwise. Vienna.

blidaënsis. ***A. blidaënsis*** *Stertz* closely resembles *lota*, but is smaller, with paler ground colour, checked fringes, anterior to which is a distinct black undulate line. The subterminal is paler than in *lota*. Both stigmata with pale reddish surrounds, reniform stigma with large round black dot in lower half. No pale patches at apical margin. Both transverse lines dissolved into irregular double rows of dots and between them a distinct brown central band. Hindwings paler than in *lota*. Algeria (Blidah les Glacières), in November.

catenata. *A. circellaris* *Hfngl.* (Vol. 3, p. 151, pl. 37 e). — ***catenata*** *Dhl.* anterior to subterminal line there is a wide band of narrow black oblique spots. S. Tyrol. — ***clara*** *Schultz* has yellowish white forewings with extinct transverse markings.

uniformis. *A. helvola* L. (Vol. 3, p. 152, pl. 37 f). — ***uniformis*** *Spul.* has very distinct markings on unicoloured ground, no paler patches in median and marginal areas. — ***cinerea*** *Obth.* is a unicoloured ashen grey form, devoid of markings from Lambessa (Algeria). — ***meridionalis*** *Dhl.* are large specimens with pale, faintly greenish colouration and variegated markings. S. Tyrol.

conjuncta. *A. litura* (Vol. 3, p. 152, pl. 37 g). — ***conjuncta*** *Höfer* has orbicular and reniform stigmata conjoined by a protraction of their lower edges. Described from Vienna, but also occurring elsewhere. — ***meridionalis*** *Stgr.* We are illustrating this striking race from Digne and Castile (19 a).

lucida. ***A. lucida*** *Hfngl.* (Vol. 3, p. 152, pl. 37 h). There is a further synonym to be added to this species: — *pistacinoides* *d'Aubuisson*. — ***alternata*** *Dhl.* bands are widely black-brown and contrast strongly with ground colour. Such specimens usually have deep black hindwings. S. Tyrol. — ***mediofasciata*** *Stauder* is similar, but has only one heavy dark central band. Pola.

mansuetella. *A. mansueta* *H.-S.* (Vol. 3, p. 152, pl. 37 k). — ***mansuetella*** *Strd.* a deep crimson-brown median area to submedian fold on forewings. — ***mansuetodes*** *Strd.* with head, thorax and forewings inclined to grey-brown. An oriental form. — ***mansuetana*** *Strd.* resembles *rufescens* but marginal area of forewings, with the exception of apex, is crimson brownish.

63. Genus: **Atethmia** *Hbn.*

xerampelina. ***A. xerampelina*** *Esp.* (Vol. 3, p. 153, pl. 28 f). The type of this very variable species is not well illustrated and we are giving a better picture here (19 a). It seems questionable to me whether all the forms classified under *pallida*, some of which seem to vary very considerably, are conspecific. My own opinion is that there are several species. — ***lutea*** *Bromb.* is lemon-yellow and without markings, except for the very narrow dark marginal area, the outlines to central area are completely absent. From Freiburg i. B. — ***nigropicta*** *Schaw.* has reniform stigma, lower median half and outer margin a black-brown shade instead of reddish yellow. Bosnia. The "greyish-purple" mentioned in Main Volume for the type is not correct, it is a nice fuscous, sometimes almost pompeian red. — ***pallida*** *Stgr.* we are illustrating a number of the forms (19 a, b) embraced under this denomination and as already stated it is doubtful as to whether they should all be classified under this species. There are whitish yellow, pale reddish yellow and pure pale reddish forms, with and without the dark median area, outlined by pale or dark lines, with and without stigmata and the whole should be subjected to a close examination to determine to what degree they are related. — ***maculifera*** *Stgr.* (19 b) has blackish reniform stigma and black basal spot. OSTHELDER and SCHWINGENSCHUSS state that there is a rufous reniform stigma as well. — ***flava*** *Rbl.* (19 b) are pure lemon-yellow specimens without any reddish admixture and indistinct transverse lines with white edges on averted sides. Described from Angora, but also reported from Marash (Taurus) and specimens from there have brownish reniform stigma and median area.

algirica. ***A. algirica*** *Culot* (19 b) resembles both the reddish *pallida* forms and *ambusta rubens*. Forewings with heavily dentate outer margin and more distinct angle in centre than the former. Forewings reddish yellow with 3 delicate paler whitish transverse lines, an almost straight subbasal line and two central lines. These enclose the slightly darker median area with its very large reniform stigma and delicate pale surround. Marginal area

increasingly darker with bolder angle in centre of margin. Hindwings pale reddish yellow-grey, inclined to reddish grey towards margin. Algeria in the province of Oran.

A. ambusta F. (Vol. 3, p. 153, pl. 28 g). — **rubens** Stgr. is now being illustrated (19 b) from a typical *rubens*. specimen from Armenia. It strongly resembles *algerica*, but has whitish hindwings. — **syriaca** Osth. (19 c) is *syriaca*. certainly not identical with *rubens*. Forewings pale yellowish with reddish sheen and faintly darkened discal area. Transverse lines and stigmata indistinct, margin narrowly dark red, fringes blackish. Hindwings white with faint reddish hue, the ♀♀ are darker, deeper brown with still duskier discal area. From Marash in the Taurus.

A. obscura Osth. (19 c) closely resembles the preceding species, differing by the more elongate and narrower wing contour with more pointed, slightly falcate apex and much more oblique margin, which is less deeply scalloped. Forewings dark brown, inclined to blackish in ♀. Transverse lines pale, more delicately drawn than in *ambusta*. They extend more obliquely and are more sharply angulated below costa. Subterminal line is very indistinct, almost straight. Hindwings pure white, reddish grey in outer area in ♀, with discal lunule and blackish marginal line. Marash in the Taurus.

64. Genus: **Cosmia** Tr.

C. aurago F. (Vol. 3, p. 153, pl. 24 h). — **purpurago** Dhl. has deep golden yellow to deep orange ground colour with a tinge of rich red, the markings vary considerably in depth and are dark blue-grey. — **pyroxesta** Dhl. (19 c) are completely unicolourous specimens of *purpurago*, the ground colour is a nice orange with violet sheen. — **pedinea** Dhl. is an extreme *unicolor*, plain whitish yellow and devoid of markings, sometimes very daintily suffused with reddish or bluish reddish. All 3 from the southern Abruzzi.

C. lutea Ström. (Vol. 3, p. 154, pl. 24 i). — **pallida** Schwing. has forewings a very pale yellow and faintly marked.

C. fulvago L. (Vol. 3, p. 154, pl. 24 i, k). — **fulvescens** f. n. (19 c) is a form of *asiatica* Hmps. that corresponds to *flavescens*, deep yellow, devoid of markings except for the lower half of reniform stigma, only the extremities of fringes are slightly darker. Ili and Issyk-kul in the collection of PÜNGELER. — **decolor** Schultz is very pale sulphur yellow, completely devoid of markings, reniform stigma also absent. — **aurantia** Tutt on the other hand is darker orange-yellow. — **sigmago** Döring is an especially small *asiatica* form, forewings somewhat orange-yellow like the thorax, diffuse brown markings, costal spots present. It is distinguishable by a brown angulated central band extending from costal margin over the central spot to the lower angle of cell, almost forming a right angle and proceeding somewhat diffusely to inner margin. The author considers this to be a high altitude race. Wing expanse: 29—31.5 mm. Turkestan, Alexander Mountains.

C. tunicata Graes. (Vol. 3, p. 154, pl. 24 k). — **flavicans** Döring f. n. (19 c) is the form that corresponds to *flavescens* of *fulvago* and is quite devoid of the bluish brown marking of postmedian area. Traces of a transverse lines are visible and especially the brownish central shade. Ussuri. According to the investigations of DÖRING *tunicata* is certainly a genuine species.

C. gilvago Esp. (Vol. 3, p. 154, pl. 28 g). There were certain inaccuracies in regard to this species and the subsequent one in the Main Volume and these can now be rectified thanks to the careful investigations of the late Dr. W. BATH (Halle). There are only 2 species: *gilvago* and *ocellaris* and these cover all the many forms, including *erythrago*, which has been held to be a separate species. The *gilvago* type is pale yellowish ochre with blackish or bluish grey-brown marking of transverse lines. The illustration in Main Volume is fairly typical. — **griseosignata** Spul. has paler markings, especially the central band is inclined to be pale bluish grey. The illustration is incorrect and according to BATH it represents the *intermedia* form of *ocellaris*. We are therefore giving a fresh illustration of this form (19 d). — **suffusa** Tutt has brown-grey ground colour, otherwise it is correctly described and illustrated. — **cinnamomeago** Spul. on the other hand is wrongly diagnosed and illustrated. Ground colour is cinnamon red with considerable extension of the bluish grey band markings. It is illustrated afresh here (19 d). — **palleago** Hbn. (= *erythrago* Warr.) has ochreous yellow ground colour with extensive rusty brown markings, so that the forewings often appear quite rusty red. In the Main Volume the illustration is too pale yellow and a correct illustration is given here (19 d). — **algerica** A. B.-H. (= *batnaensis* Obth.) (19 d) has ground colour a much paler yellow-grey to pale ochreous yellow shade, the markings also vary in extent and from pale grey to rusty brownish. Hindwings are relatively dark. This is chiefly a North African form, but it also occurs in Spain and elsewhere in S. Europe. — **rubra** A. B.-H. (= *pseudolineago* Schwing. i. l.). This closely resembles many *palleago* specimens, but is a still deeper rusty brown, with very dark marginal area to forewings and whitish dusted veins, being very similar to many an *ocellaris* and therefore erroneously classified by its author to *ocellaris*. — **austauti** Obth. (19 d) is the palest form of *algerica* with impure yellowish white forewings and only with faint traces of brownish or greyish markings of stigmata and transverse lines. Algeria. The following have also been described: — **gilvagella** Strd. an english form. Forewings and body pure yellow with brown spots and heavily black subterminal markings. — **xanthago** Schaw. is a paler ochreous yellow form of *palleago* from East Bosnia, Mostar, which would about correspond to the illustration of *erythrago*.

monilifera. in the Main Volume (28 h). — **monilifera** *Culot* denotes a form of *austauti* that is brownish and more darkly speckled and — **rosina** *Culot* is a uniformly salmony pink form. Both from Algeria. — subsp. **bathi** *Döring* has yellowish ground colour with a tinge of brownish. The brown central marking is inclined to be absent and is pale brown only between the central shade and posterior transverse stripe; orbicular and reniform stigmata have distinct brown surrounds, the latter with pale brown centre and yellowish white dot. Hindwings white, faintly suffused with brownish, but the inner marginal area is not brownish as is usually the case with *gilvago*.
fuscescens. Syr Darja. Aulie Ata, Issyk-kul. — f. **fuscescens** *Döring* is a uniformly reddish dusted specimen of the previous form. The larva of *gilvago* and its forms feeds exclusively on elm.

ocellaris. **C. ocellaris** *Bkh.* (Vol. 3, p. 155, pl. 28 h). Much the same applies here as said under *gilvago*. The type *carneago*. is fairly recognisably illustrated in the Main Volume, it might be a shade more reddish yellow. — **carneago** *Warr.* has a more reddish yellow central area, whilst marginal and basal areas in contrast are dusted with grey. — *lineago*. **lineago** *Guén.* denotes specimens that are more heavily suffused with dark grey, so that the ground colour gives *palleago*. a darkish brown impression. Transverse lines and veins remain pale. — **palleago** *Hbn.* is the counterpart thereto, *punctata*. being quite pale greyish yellow with still paler transverse lines. — **punctata** *Heinr.* is an aberration with a row *intermedia*. of black dots at inner edge of subterminal line. — **intermedia** *Habich* (19 d) is the form that is so often wrongly diagnosed, with pale ochreous to olive grey ground colour with bluish grey spots and bands, whereby in many specimens a striking resemblance is created to certain *gilvago* forms. The *ocellaris* forms are however generally easily recognisable by the more protracted and falcate apex of forewings. The larva feeds exclusively on poplar.

innotata. *C. sulphurago* *F.* (Vol. 3, p. 155, pl. 28 i). — **innotata** *Failla-Ted.* is now illustrated (19 e), ground colour, especially of ♀ is much deeper orange. — **schawerdae** *Stauder* is ashy grey instead of yellow, markings are only very faintly indicated, body is pale yellow-grey. Described from Trieste.

C. vulpecula *Led.* (Vol. 3, p. 155, pl. 28 f) should be removed from here, as according to FILIPJEV it belongs among the *Luperina* near *ferrago* *Ev.*

citrago. **C. citrago** *L.* (Vol. 3, p. 155). We are illustrating the typical form (19 e), as it was omitted from Main *subflava*. Volume. — **subflava** *Ev.* (19 e). We are also illustrating this pretty and apparently very rare form. — **umbrata** *Heinr.* only has the central transverse stripe shaded outwardly to the extent of 1 mm, whilst in — **fasciata** *Grönbl.* the entire area between the central shade and the posterior transverse line appears shaded with brown. Finland. — **signata** *Krüger* resembles *subflava*, but has not the brown basal area of same. On the other hand it *apennina*. has a bold brown claviform stigma. — **apennina** *Dhl.* is uniformly pale dull yellow like *incolorata* *Warr.*, but the veins and lines are distinctly brown and the stigmata finely outlined. Hindwings and abdomen ivory white. This is the race from the Abruzzi.

japonago. **C. japonago** *Wilem. & West* (19 e) is very close to *citrago* and was described as a subspecies of same. However the genitalia are different and the ♂ antennae are serrate and ciliate. Forewings reddish yellow, bestrewn with orange. The subbasal and anterior transverse lines are orange, the latter is sharply angulated, stigmata finely outlined in orange, the oblique central shade is blackish brown. The posterior transverse line is delicate, black-brown, similarly the fringes at inner and outer margins. Hindwings are pale reddish yellow, veins and inner margin incline to yellowish red. Wing expanse: 36 mm. Hokkaido.

Subfamily: Amphipyrinae.

HAMPSON first named this subfamily *Acronyctinae*, whilst now it is re-named *Zenobiinae* after *Zenobia* *Oken* (= *Dicycla* *Guén.*) with *oo* *L.* as type.

2. Genus: **Pyrois** *Hbn.*

gallica. *P. effusa* *Bsd.* (Vol. 3, p. 157, pl. 38 a). — **gallica** *Schaw.* is a dark race from Corsica and S. France. The forewings are very dusky black-brown, the 3 stigmata are pale and contrast sharply.

3. Genus: **Amphipyra** *Tr.*

fusea. *A. pyramidea* *L.* (Vol. 3, p. 158, pl. 38 a). — **fusca** *Rocci* denotes a dark dusky blackish specimen with diffuse markings. Described from Piedmont, but certainly only aberrative. There is probably scarcely any *obscura*. difference between same and — **obscura** *Obth.* which is also applied to dusky dark specimens. — **melaleuca** *Lenz* *melaleuca*. has grey-black forewings with narrow white transverse lines, of which especially the subterminal stands out particularly clearly. Probably this is a transition to the form *albisquama* *Warr.* mentioned in Main Volume. *pallida*. — **pallida** *Lamb.* has pale ashy grey forewings on which the transverse lines appear marked by whitish grey, also the orbicular stigma is outlined by grey-white, the central band is not more prominently dark. Belgium.

A. livida F. (Vol. 3, p. 158, pl. 38 c). — **postpallida** Strd. has much greyer forewings and paler hind- *postpallida*. wings. It occurs everywhere occasionally among the main form. — **carriolata** L'Homme has unicoloured richly *carriolata*. brown forewings and coppery hindwings. France.

A. erebina Btlr. (Vol. 3, p. 159, pl. 38 d). — **centrali-chinae** Strd. In this form the orbicular and reni- *centrali-chinae*. form stigmata are absent from forewings. China.

A. tragopoginis L. (Vol. 3, p. 159, pl. 38 d). — **brayi** Lamb. is a melanic form reminding one in colour- *brayi*. ation of *livida*: deep black and devoid of markings. Also hindwings are darker. Belgium. — **grisea** Vorbr. is *grisea*. a pure grey form from Switzerland. — **distincta** Roths. is a very distinctive subspecies, larger, forewings black- *distincta*. brown in basal threequarters, the outer quarter inclined to sooty grey. Hindwings rusty brown, wing expanse up to 47 mm. Algeria (Djebel Zaccar, Hammam R'hira).

A. schrenckii Mén. (Vol. 3, p. 159, pl. 38 e). — **apicalis** Strd. denotes a transition form to *uniformis apicalis*. Warr. with somewhat diffuse white apical streak and scarcely worthy of denomination. East Asia.

A. micans Led. (Vol. 3, p. 159, pl. 38 e). — ab. **baloghi** Diosz. has a black-brown band in postmedian *baloghi*. area. Hungary.

A. molybdea Chr. (Vol. 3, p. 160, pl. 39 c). According to OSTHELDER, who has repeatedly received the *molybdea*. species from Marash, it is certainly a genuine species. It is much smaller and has narrower wings than *micans* with more pointed apex. Forewings pale grey-brown, heavily admixed with whitish, especially in basal and postmedian areas. The transverse lines are more sharply dentate, without black sagittate marks in marginal area. Hindwings grey-white with pure white fringes. Occurs simultaneously next to *micans*.

A. satinea Roug. The Genus *Neocomia* was created for this species owing to the palpi being scaled to *satinea*. tip. It has short and wide forewings; they are dark red-brownish with violet sheen and 2 black transverse lines that are with pale outlines and which converge towards the inner margin. They thus enclose a narrow central area, in which the small 8-shaped reniform stigma is situate which has a double black centre. The indistinct subterminal line is pale with darker inner edge. Hindwings grey-black with reddish gloss. Underside violet-grey with 2 dark curved postmedian lines that are parallel to margin. Length of forewings: 14 mm. Only 2 specimens are known, which were captured at light at Neuchatel in 1898. It is still questionable, whether this is a genuine species and it is remarkable that since the first captures nothing has ever been heard again of this species.

4. Genus: **Gracilipalpus** Calb.

According to PÜNGELER the name: **Anthracia** Hbn. should be used for this Genus.

5. Genus: **Stygiostola** Hmps.

St. umbratica Goeze (Vol. 3, p. 160, pl. 38 f). — **bellieri** Culot is much paler, more of a mouse-grey colour- *bellieri*. ation. From Sologne.

6. Genus: **Orthogonia** Flor.

O. sera Fldr. (Vol. 3, p. 161, pl. 38 g). — *serana* Strd. is synonymous with — **carneata** Warr. and — *serella* *carneata*. Strd. with — **obscurata** Warr. *obscurata*.

O. plana Leech (Vol. 3, p. 161, pl. 39 a). There seems no sense in giving the denomination — *post-medialis* Strd. besides — **semigrisea** Warr., as in the description it is especially stressed that the discal area *semigrisea*. varies. — **griseobrunnea** Strd. is inclined to grey-brown, — **olivaceobrunnea** Strd. to pale olive-brown. *griseo-brunnea*.

O. plumbinotata Hmps. (Vol. 3, p. 161, pl. 38 h). — **fuscogrisea** Strd. has dark grey-brown forewings. — *olivaceo-brunnea*. **griseosuffusa** Strd. has forewings suffused with grey in postmedian area and at apex, also having a whitish sub- *fuscogrisea*. anal streak. West China. *griseo-suffusa*.

7. Genus: **Mania** Tr.

M. maura L. (Vol. 3, p. 162, pl. 39 b) is recorded by ROTHSCILD as occurring in Algeria and Tunis *maura*. from May to September. — **ojcoviensis** Biezanko has only a very faint pale apical spot, the pale transverse *ojcoviensis*. lines are almost obsolete, there is a pale band anteriorly with a dark band parallel outwardly in central area. Poland. — **maurisca** Strd. is a monotonous dark black form without any brownish sheen. All pale markings *maurisca*. are absent except the margin of hindwings and the narrow discal band. Sicily.

8. Genus: **Dipterygia** Steph.

andreji. *D. scabriuscula* L. (Vol. 3, p. 163, pl. 38 f). — ssp. *andreji* Kard. has a dark anal patch and dusky inner margin of forewings, similar to that which occurs in tibetan or chinese *caliginosa*. Vladivostock (Narwa Island) in August.

9. Genus: **Parastichtis** Hbn.

apenninigena. *P. lithoxylea* F. (Vol. 3, p. 163, pl. 39 c). — *apenninigena* Dhl. denotes specimens with whitish blue-grey colouration with scarcely any sign of yellowish grey, the dark patches are however a rich black-brown. *horrida*. Hindwings inclined to grey. Southern Abruzzi. — *horrida* Dhl. in contrast are deep rusty yellow with dense black-brown dusting; from the highest peaks of the Abruzzi at 2500 m altitude on the Gran Sasso; in this form the deep brown costal patch extends to beyond the mediana. Hindwings brown with cell spot and discal band. — *caerulescens* Reisser has a bluish grey ground colour instead of the ochreous yellow. It is a remarkable shade and extends from base to central shade, only being interrupted by the yellowish surround to orbicular stigma, along the costal margin to apex and in marginal area. The central shade is red brown at costa and beyond same costa is pale whitish. Hindwings grey-white, head and thorax pale grey, collar and thoracical tufts brown. *brunnea*. Corsica. — *brunnea* Lamb. has forewings suffused with a chestnut brown, hindwings have a wide brown marginal band.

indiges. *P. indiges* Trti. closely resembles *lithoxylea* and also *sicula* Trti, its author considers same a genuine species and not a form of *monoglypha*. Forewings yellow-brown, similar to *sublustris* with a wide brown central shade between the stigmata and down to submedian fold. The postmedian area and stigmata blue-grey, the orbicular stigma oval. Marginal area behind the subterminal line is dusky brown. As in *monoglypha* a long black-brown basal streak. Hindwings yellowish, brownish towards margin with brown veins and brown discal lunule. Wing expanse: 46—48 mm. Cyrenaica.

sicula. *P. sicula* Trti. (Vol. 3, p. 164, pl. 39 c) is now, perhaps justifiably, considered a genuine species, which is close to the preceding. As the illustration was very poor, we are giving a better one here (19 f).

pallida. *P. rurea* F. (Vol. 3, p. 164, pl. 39 e). — *pallida* Heinr. has the greyish white colour of type, but the brown markings of costa, the dark patch between the stigmata and also the brown marginal and basal streaks are inclined to be absent or uniformly yellowish grey, whilst not however being the ochreous shade of *ochrea*. *corsica*. Tutt. — *corsica* Schaw. Forewings dark sandy to steely grey with dark grey-brown markings at basal part of inner margin and on costa above stigmata. Outer margin pronouncedly dark black-brown, the stigmata themselves pale grey. Hindwings sandy grey, darker at margin. Corsica.

funerea. *P. funerea* Hein. (Vol. 3, p. 165, pl. 39 f). The specific type, as was first pointed out by HEINRICH, should be denominated by the earlier name *aquila* Donz., *funerea* being a form of same. The latter has meanwhile been found in Switzerland (Martigny, Chur, Lenzburg etc.) as well as in the Tyrol (Klein Göll near Golling). — *aquila* Donz. (= *albomaculata* Gram.) is the much paler, almost coppery coloured form with scarcely any black dusting, its reniform stigma has a pure white surround and central dot. A local swiss form from Elgg, also from Chiasso, Lake Maggiore and from the Pyrenees (Gèdre). — *flavomaculata* Dhl. denotes specimens with stigmata having yellow to orange red centres. This is an apparently rare aberration from Hanover, east Friesland and Lübeck. As the illustration of *funerea* in Main Volume was poor, a better one is given here (19 e).

veterina. *P. veterina* Led. (Vol. 3, p. 165, pl. 39 g). Instead of *veterina* an illustration of the american *rorulenta* was erroneously given in the Main Volume. We are therefore now giving a correct illustration of this species (19 f).

pallida. *P. monoglypha* Hfngl. (Vol. 3, p. 165, pl. 39 g). — *pallida* Bodart are pale specimens with almost pure white stigmata and lines. Belgium. — *rosea* Schönfeldt has ground colour suffused with rose. From around Berlin. — *abruzzorum* Dhl. is the almost bleached, pale whitish grey race from the Abruzzi with delicate markings and with posterior transverse band pale with wide white edge. Also stigmata are with whitish or grey-white centres. Hindwings similarly pale with wide black-brown margins. Generally these specimens are small. The following forms are no doubt conspecific with *monoglypha* — *corsica* Trti. and *sardoa* Trti., as well as *sicula* Trti. which was previously classified as a species. In the Main Volume it was a mistake to place them with *standfussi* Trti. (Vol. 3, p. 164). The two former certainly, the latter probably also, are races of *monoglypha*. Further the illustrations of *corsica* and *sardoa* leave a lot to be desired and better illustrations are now given here (19 f). — *syriaca* Osth. (19 f) is somewhat smaller than the average of the european type race. Forewings monotonous dark brownish red, more or less speckled with black, markings very distinct, the pale anal streak is absent. Hindwings with distinctly outlined marginal band. — *albida* Osth. belongs to this race and is a strikingly pale subform. Forewings whitish grey with faint darker markings. Both from Marash (Taurus); *syriaca* also occurs in the Lebanon district.

arabs. *P. arabs* Obth. (Vol. 3, p. 169, pl. 40 d). Some confusion was created in the Main Volume with the forms

classified under this species. *arabs* is very closely related to *monoglypha*. The illustration in Main Volume is very good. — **biskrae** *Obth.* is a pale sandy yellow desert form of *arabs*; the latter itself is very variable in size *biskrae*. and distinctness of markings, being paler or darker ochreous brown with distinct or diffuse markings. Specimens from Djebel Aurès have a heavy admixture of grey-white before and beyond the central area and stigmata are very distinctly marked. — **polyglypha** *Stgr.* (= *polygrapha* *Turner*) (Vol. 3, p. 166) should probably be *polyglypha*. classified here. It is the larger Palestine form that was described later. It is even closer to *monoglypha*. Syrian specimens show more variation, being paler with darker markings and approach *monoglypha syriaca*. They deserve denomination — **maraschi** *f. n.* (19 f). We are also giving an illustration of the typical *polyglypha* from *maraschi*. Palestine (19 e). — **standfussi** *Trti.* (Vol. 3, p. 164) is also a form of *arabs*, from which it varies little. We are *standfussi*. illustrating same also (19 f). — **ribbei** *Pglr.* (Vol. 3, p. 169, pl. 40 d) which was dealt with in Main Volume as *ribbei*. a genuine species, should be placed here and apart from the slightly smaller size it cannot be distinguished from *arabs*. The illustration was good.

P. superba *Trti.* should also be classified here. Ground colour pearly grey with bluish grey dusting in *superba*. pale postmedian area. The posterior double transverse line is interfilled with yellowish, marginal area dark brown, edged by the brown subterminal line that forms a sharp "W". The round orbicular stigma has yellowish centre, the yellowish obsolete and only faintly outlined reniform stigma has the lower lobe filled with dark brown. Claviform stigma yellowish at base with clearcut black-brown surround and conjoined to the posterior transverse line by the usual black streak. Hindwings pure white with delicate brown marginal line. Wing expanse: 36 mm. Cyrenaica (Tobruk) in March.

P. lateritia *Hfngl.* (Vol. 3, p. 166, pl. 39 i). — **unicolor** *Heinr.* are a rich brown and devoid of markings, *unicolor*. only the white outer edge of reniform stigma is retained. From around Berlin. — *decolor* *Stertz* is synonymous *sordida*. with — **sordida** *Warr.* — **obsoleta** *Stephan* are normal specimens but without any trace of white in orbicular *obsoleta*. and reniform stigmata. From the mountains around Glatz. — **alpium** *Dhl.* denotes alpine specimens from the *alpium*. Tyrol, which are much darker. The ground colour is a dark grey-brown, inclined to blackish in costal region and occasionally with white dusting along inner margin. At altitudes above 1000 m. — **soldana** *Noack* (19 g) *soldana*. is a remarkable, large race from the Sulden valley, also occurring in Vintsehgovia. Wing expanse up to 55 mm, deep brown and consequently with more prominent white reniform stigma. — **melania** *Lamb.* has deep black- *melania*. brown forewings and dusky hindwings. Described from Belgium.

P. jezoensis *Mats.* (19 h) is placed by its author close to *lateritia festiva*. Forewings yellow-brown with *jezoensis*. dark brown markings. Transverse lines obsolete, the anterior one only visible below median, the posterior one finely dentate. The obliquely oval orbicular stigma has black-brown patches at each side, the large reniform stigma similarly but dark brown. Below the outer end of cell there is a large black-brown spot. The pale subterminal line has a wide black-brown shade outwardly. Apex is pale. Hindwings grey, darker towards margin with black-brown discal spot. Hokkaido (Sapporo).

P. sordida *Bkh.* (Vol. 3, p. 167, pl. 39 h and 40 a) (the latter illustration is the better of the two). — **nigrescens** *Hannem.* with deep grey-black ground colour. Described from around Berlin. — **lactea** (*Cockayne* *nigrescens*. i. l.) *Turner* has albinotic characteristics. Ground colour is pure yellowish white with brown markings and *lactea*. a pale brown, very distinct central shade. From England. — "*venardi* *Bsd.*" is a misprint, it should have been *renardii*. — **renardii**. Such specimens occur for instance in Spain and closely resemble the northern *engelhartii*. We are illustrating one of these spanish specimens (19 g).

P. shibuyae *Mats.* reminds one of *oblonga fribolus*. Forewings dark grey with black-brown markings, *shibuyae*. black basal streak, boldly undulate anterior transverse line and a similar posterior one. Orbicular stigma elliptical at top and bottom, with black surround. The large reniform stigma is ear-shaped, black on inner edge. A black streak extends from the large claviform stigma to postmedian. Subterminal line pale yellowish, with black-brown inner edge, the margin beyond same black-brown. Hindwings pale grey with silky gloss, widely dusky at margin. Wing expanse: 46 mm. S. Saghalin.

P. illyria *Frr.* (Vol. 3, p. 167, pl. 40 c). The illustration was poor, we are giving a better one here (19 g). *illyria*. It is surprising to relate that during the last years *illyria* has been found simultaneously at 6 central german localities. The most remarkable, is its occurrence at the "Wärmeinseln" in the hessian-thuringian mountains. It occurs there in open woodlands, in clearings in beech and pine forests, where high grass grows on chalk and zechstein. It flies early in June. The larva feeds on *Daetylis glomerata*, hiding by day among the blades and only feeding at night. It hibernates when full-fed and does not resume feeding when spring comes.

P. obscura *Haw.* (Vol. 3, p. 168, pl. 40 e). — **supermissa** *Spul.* is not identical with *remissa*, but is more *supermissa*. extremely bright in colouration. It has white admixture in basal area, at centre of inner margin and in marginal area. Besides stigmata have white centres.

P. conciliata *Btlr.* (Vol. 3, p. 168, pl. 40 e). *yocohamae* *Strd.* appears identical with typical ♀. *conciliata*.

nigro-brunnea. *P. unanimitis* Tr. (Vol. 3, p. 168, pl. 40 c). — *nigrobrunnea* Hoffm. is a very dark form, forewings deep brown and almost devoid of markings. Only the posterior transverse line is visible towards the inner margin with the reniform stigma, which has a delicate white edge outwardly.

pabulatricula. *P. pabulatricula* Brahm (Vol. 3, p. 168, pl. 40 d). According to PETERSEN's own notes the name — *elota* Hbn. should have precedence over *semibrunnea* Pet.

alacra. *P. basilinea* F. (Vol. 3, p. 169, pl. 40 e). — *alacra* Dhl. denotes the much more brightly marked race from the central Italian mountains. Ground colour is much paler with white interspersions, finely and distinctly marked. The narrow central shade has pale brown edges, the bold costal spots are darker, the dentate line before the margin is more pronounced. Albanian mountains. — Specimens of — *basistriga* Stgr. without the basal streak are named — *alineae* Turner. Norway, Altai, Amur. — *grisescens* Stgr. from Thibet is now illustrated (19 g). *atinea.* *grisescens.* *xylinoides.* *P. xylinoides* A. B.-H. (= *pennigera* Trti.) (19 g). Forewings pale brownish, heavily darkened with black-brown in inner marginal area. Widely paler posterior to postmedian and with heavy black basal streak. Reniform and orbicular stigmata whitish without sharp outline, the latter an oblique longish spot. The anterior transverse stripe is absent, the posterior double and only distinct at inner margin. The median whitish, veins in marginal area black, long black sagittate marks in the interstices posterior to the boldly dentate subterminal line. Grey hindwings, paler at base, with distinct central spot and lunular marginal line. Karakorum, Alai, Semeritshje. Perhaps this is a *Crymodes*.

scha-werdae. *P. schawerdae* Draes. (19 h). Forewings brown, paler behind the cell towards apex with a very characteristic black longitudinal streak from base above vein 1 to about threequarters length of wing, then somewhat angulated upwards and extending just above vein 2 to the outer margin. Behind the indistinct postmedian there are 2 further black longitudinal lines between 4 and 5, as well as 5 and 6. Orbicular and reniform stigmata are somewhat darker and with black surrounds. The former is very elongate and extends to reniform stigma, the latter with white dots at upper and lower edges. Hindwings yellowish, dusky at outer margin with large discal crescent and fine dark marginal line and paler fringes. Szechuan (Ta-tsien-lu).

unicolor-brunnea. *P. scolopacina* Esp. (Vol. 3, p. 170, pl. 40 f). — *unicolor-brunnea* Wgnr. is a monotonous brown form, only costa and central shade are slightly darker; — *unicolor-nigra* Wgnr. is a uniformly black suffused form, which is only slightly paler in marginal area. Both described from Salzburg.

semirufa. *P. cuneata* Leech (Vol. 3, p. 170, pl. 40 g). — *cuneatella* Strd. is synonymous with *semirufa* Warr. *plumbealis.* *P. plumbealis* Mats. (19 h). Forewings leaden grey with black basal streak. The grey orbicular stigma is large, oval, with black-brown surround and with pale grey lateral edges. The grey reniform stigma is similarly large, rectangular and between both there is a large black spot on costa. Anterior transverse line only visible below median, undulate with sharp angle on vein 1. The undulate posterior transverse line is quite obsolete. Subterminal line pale grey with brown spot in cellule 5. On costa there is a large brownish subapical spot. Marginal line black, undulate. Hindwings grey-brown with deep brown discal spot. Wing expanse: 46 mm. Hokkaido (Sapporo).

ochracea. *P. secalis* L. (Vol. 3, p. 171, pl. 40 g, h). — *ochracea* Turn. has ochreous brown forewings, the area between costa, subterminal line and submedian fold, as well as that at margin, with the exception of the apex, are black-brown. — ab. *xanthostigma* Schaw. like *leucostigma*, but with yellow stigmata. From Corsica and Herzegowina. — *atrocyanea* Krul. is a deep blue-black glossy form without white stigmata. Described from W. Russia, but also occurring elsewhere, for instance I have a specimen from central Italy before me. — *struvei* Ragusa (Vol. 3, p. 172, pl. 40 h) is not a separate species, but only an aberration of *secalis* with white dusted basal and subterminal areas. It has also been found at St. Goarshausen and in East Prussia and ROTHSCILD notifies having received specimens from Algeria (Setif). — *struvei-excessa* Turner has also that part of the inner margin between the white patches, white. From a specimen from England. — *binota* Turn. has a white streak from the white reniform stigma to the posterior transverse line. Ground colour is otherwise monotonously black.

calcirena. *P. calcirena* Pglr. (19 h) should, according to its author, be classified after *moderata* Ev. (Vol. 3, p. 171, pl. 40 h) and it is not a *Celaena* as originally described. Forewings reddish brown with darker central area and still darker edges; pure white stigmata. Marginal area grey-brown. Hindwings unicolourous grey, without central spot. From Togus-torow.

timida. *P. timida* Stgr. (19 h) was omitted from Main Volume. Whether same should be placed here or under *Dexiadena* can only be decided after an examination of the genitalia. The type has been submitted to me. It is a sleek species with elongate pointed apex. Forewings pale sandy brown with black basal streak and delicate blackish double transverse lines interfilled with whitish, which converge closely at inner margin. Orbicular stigma large, round, paler than ground colour, expanding outwardly at lower edge to an indistinct cuneiform mark. Reniform stigma not paler than ground, with fine black surround. The large claviform stigma extends almost to posterior transverse line. Behind the whitish subterminal line with its pointed "W", the marginal

area is somewhat darker grey. Hindwings whitish with widely dusky margin, central spot and delicate postmedian, fringes whitish. Ferghana.

10. Genus: **Oligia** Hbn.

O. strigilis Cl. (Vol. 3, p. 172, pl. 40 i, k). This species has just lately been subdivided into three. After *strigilis*. DAMPF had separated *latruncula* as a genuine species, quite recently HEYDEMANN claims that the old *versicolor* Bkh. is a third species. All three are very difficult to distinguish, the differences in the two latter are based chiefly on the genitalia; *strigilis* is the most readily recognisable species. It is the largest of the 3 species and has a wing expanse of 23—25 mm. Ground colour is grey-brown to dark brown, reddish, ochreous or yellow-brown colouration does not occur. The stigmata have not paler centres. Marginal area varies in colour from chalky white over pale grey to blackish, but is never ochreous, rusty or rosy. The arrangement of the markings, especially the outer line with its characteristic black dentations in the paler marginal area, appears to be constant and is the best distinguishing feature. The following forms belong here: — **amoena** Krul. with greenish *amoena*. hue in marginal area. Described from Wiatka and Kasan, but also occurring in western Germany. — **conjuncta** Heydem. denotes specimens with pronounced black oblique streak between claviform stigma and posterior *conjuncta*. transverse line; the stigmata are always unicolourous with ground. West and south Germany, Carinthia. — **fasciata** Tutt blackish brown to blackish with highly contrasting white marginal area. Chiefly occurs in Eng- *fasciata*. land, more rarely in northern Germany, Bavaria, Dresden and Austria. — **suffumata** Warr. is like *fasciata*, but *suffumata*. marginal area is suffused with grey-black in which often only the innermarginal part of the marginal band is edged with white. A rarer form. — **aethiops** Osth. nec Hew. is a completely black form, in which however *aethiops*. nevertheless the deeply black markings are still distinctly visible. Chiefly occurring in northern Germany, but also found in Bavaria, Saxony and Austria. — **ferrea** Warr. is a pale ashy grey faintly yellowish form, the *ferrea*. central area inclined to brownish grey with very delicate black markings. Only known from England.

O. versicolor Bkh. (19 i). We are giving here, as in the other allied species, an extract of the descriptions *versicolor*. of HEYDEMANN. The most striking superficial characteristic is the reddish brown, almost claret ground colour of central area from which the two rose, to impure pale yellowish, stigmata stand out. Generally, but not always, they have a white and fine black outer edge — in *strigilis* they are the same colour as ground and never paler, in *latruncula* they never have a white surround —; fringes are pale yellow-grey with dark grey checks; the white postmedian with a very flat arc, as in *latruncula*, at inner margin. Hindwings dark grey-brown with pale yellow marginal line that is somewhat spotted on veins. The deeply black oblique streak on forewings that generally conjoins the claviform stigma with the postmedian, is very characteristic. Wing expanse: 22—24 mm. — **fasciata** Lenz (= *virgata* Warr. nec Tutt) is a pale form with almost white marginal area contrasting from the pale rose- *fasciata*. brown central area. The illustration on pl. 40 i of Main Volume is very good, according to HEYDEMANN. — **pseudolatruncula** Heydem. has darker central area, dark brown to grey-brown, costa and stigmata are paler, *pseudo-* *latruncula*. marginal area quite lilac-grey with brown outer transverse line. In cases where the stigmata are without white surrounds, frequently almost indistinguishable from *latruncula*, but the marginal area is never so ochreous or rusty red as in the latter. — **roseo-suffumata** Heydem. is a dusky smoky grey form with pale grey marginal area *roseo-* *suffumata*. and brown shade, in fresh specimens the central area is nicely suffused with rosy red. All markings, also the oblique streak over the inner margin are deep velvety black, also the white of the antemedian line is dusky. Apparently only found in Slesvig-Holstein. Through the kindness of HEYDEMANN, we are able to give an illustration of this form (19 i). — **aethiops** Heydem. is the rare, extremely black variation in which all markings are *aethiops*. obsolete except the deep black transverse streak, which always remains visible over the inner margin as also the surrounds of the stigmata. Holstein. The distribution has not yet been ascertained. It occurs chiefly in northern Germany, but is also found in S. Bavaria, Hessen, Paris and Italy.

O. latruncula Hbn. (Vol. 3, p. 172, pl. 40 i). The species would better be named — **aerata** Esp. as this *latruncula*. name has 16 years priority. Forewings grey-brown, marked as in the 2 preceding species. The arc of the white *aerata*. postmedian is flatter over the inner margin, straighter than in *strigilis*. Black streaks along the veins occur in pale marginal area, but they are very faint. The dark central area is a darker brown below the distinct black oblique stripe. Stigmata appear more prominently pale, they are buff to brownish. Marginal area is generally pale yellow-grey, buff to brownish, but apparently never whitish. — **meretricula** Bkh. has marginal *meretricula*. area behind the white postmedian, quite pale buff to pale yellow-grey. According to HEYDEMANN the illustration of *praeduncula* in Main Volume (40 i) corresponds to this form. — **intermedia** Hormuz. marginal area is not *intermedia*. paler than the unicolourous brown central area, it is dark reddish grey brown, only the lower part of the postmedian band is slightly more distinctly white. The black oblique streak is often absent. — **aethiops** Haw. *aethiops*. is the black suffused form, that is often slightly paler reddish brown in marginal area. The markings of central area and frequently also the black oblique streak are still discernible. Generally it is smaller and more monotonous in colour than the parallel form of *versicolor*. It occurs as the only race on the north Frisian Islands and in Slesvig-Holstein, in northern Germany it is common but rarer in central Germany.

unicolor. — **unicolor** *Tutt* is devoid of markings, unicoloured dark reddish brown, often coppery to sooty black. The *victiuncula*. black oblique streak is absent, differing thereby from the dark *versicolor* forms. — **victiuncula** *Heydem.* belongs to the dusky *unicolor*, but has still a deep black angulated central band to inner margin, as in the *bicoloria* form. *grisescens*. — **grisescens** *Heydem.* is monotonous grey-brown, basal and discal areas somewhat darker, with brown irrorations and with the deep black oblique streak. Stigmata with pale grey-yellow surrounds, the grey-brown postmedian band is especially pale and is interfilled with white above the inner margin. It occurs as a race on the Lebanon, but is also found as a form in central Italy. Wing expanse: 20.5—23.3 mm and thus the smallest species. It is common everywhere in Europe and extends southwards as far as Sicily.

albiluna. *O. fasciuncula* *Haw.* (Vol. 3, p. 172, pl. 40 k). — **albiluna** *Kozh.* Whether this is actually a form of *fasciuncula* is questionable, as hitherto the latter is only known to occur in western Europe; *albiluna* only differs by a golden sheen on the brown forewings and an outstandingly white crescentiform spot in place of reniform stigma. From around Minussinsk. — *erratricula* *Rmbr.* (nec *Hbn.*) mentioned in Main Volume as synonymous, *grandis*. is named by TURNER: — **grandis**, as according to the illustration it is more than twice as large as typical *fasciuncula*. From Andalusia.

leuco-nephra. **O. leuconeophra** *Hamps.* (Vol. 3, p. 174, pl. 42 a). The illustration is too much reduced in size, the wing expanse is almost 20 mm. It is uncertain whether the species should be classified here, it has apparently considerable resemblance to the form *albiluna* of the preceding species.

faroulti. **O. faroulti** *Rothsch.* (= *powelli* *Obth.*) (19 i) is a grey species, that is related to *literosa* *Haw.* (Vol. 3, p. 172, pl. 40 k) but without the red hue. However it must not be confused with *subarcta*. The central line and posterior transverse line are differently shaped, they are not so steeply oblique and do not converge in a rectangle on inner margin. According to the details given by ROTHSCILD, it is deemed to be a genuine species and HEYDEMANN's investigations confirm this. Algeria (Guelt es Stel).

minor. *O. bicoloria* *Vill.* (Vol. 3, p. 173, pl. 40 l). — **minor** *Cabeau* and — **minuscule** *Cabeau* are superfluous names for small specimens in the colouration of *rufuncula*. — **reisseri** *Schaw.* is a striking variety from Corsica. *minuscule*. *reisseri*. Ground colour of forewings grey-brown with darker brown central area, which is edged on both sides by double lines with white interfilling. Orbicular stigma with pale surround; reniform white, appearing larger than it is actually owing to a white costal spot immediately above. The faint subterminal line is whitish, fringes checked. Hindwings darker grey than in type. HEYDEMANN states that it is similar to the *reticulata* forms. I have a specimen very like the original illustration of the author from East Prussia (Rauschen).

rufata. **O. rufata** *Kard.* resembles *fasciuncula*. Forewings yellow-red, the central area barely darker, rather paler towards inner margin. The white crescent posterior to the outer transverse line is absent. Reniform stigma pale yellow, other markings as in *fasciuncula*. Hindwings pale brown, 2 parallel lines before margin, margin itself dusky. Fringes of forewings fuscous, those of hindwings paler. Wing expanse: 23 mm. Ussuri (Narwa Island).

lignea. **O. lignea** *Trti.* is a small, quite monotonous brown species, devoid of any markings on forewings except perhaps for vestiges of the somewhat darker commencements of the two transverse lines on the costa. These seem to have a paler edge on averted sides, but the transverse lines themselves are not visible. Hindwings monotonous dusky brown inclusive of the fringes, anterior to which there is an extremely fine black line. Head and collar somewhat paler and more yellowish than thorax, which is of the same colour as the forewings. Abdomen dark grey. Wing expanse: 21 mm. From a ♀ from Ain Mara (Cyrenaica), in October.

karafutonis. **O. karafutonis** *Mats.* resembles a *P. secalis*, but according to the assurance of the author it is an *Oligia*. Forewings brown, darker markings diffuse. The undulate anterior transverse line has somewhat paler inner edge, boldly excurved at submedian, central line is wide, darkened at lower angle of cell. Postmedian with short dentations and narrow grey inner edge, outwardly with black dots on veins. Subterminal line pale grey. The round orbicular stigma is elliptical above and below with fine white surround. The elongate reniform stigma similarly. The small claviform stigma is rather darker than the ground colour. Hindwings dark grey. Wing expanse: 30—34 mm. N. Saghalin, in August.

capli-unculoides. *O. captiuncula* *Tr.* (Vol. 3, p. 174, pl. 41 b). According to HEYDEMANN the name for this species should be: — **minima** *Haw.* (1803) and this name deleted under *Petil. arcuosa*. Recently WARNECKE has gone carefully into the distribution of this small species and seeing that it is absent from the arctic North and the high alpine territories, he questions the thesis established elsewhere that this species is a glacial relic i. e. a boreo-alpine species. To be added to the localities mentioned in the Main Volume are: Spain (Sierra de Alfacer), the Pyrenees, bavarian Alps, Moravia, Sudetes, Swabian Alps, Vosges, Jena (!), Bulgaria, — **captiunculoides** *Strd.* has a red postmedian area, without any trace of white posterior to postmedian line. — **albosuffusana** *Strd.* has ante and *suffusana*. postmedian area dusted with white.

sachalinensis. *O. haworthii* *Curt.* (Vol. 3, p. 174, pl. 41 b). — **sachalinensis** *Mats.* differs from *nomino*-type by the much larger reniform stigma which is extended along veins 3 and 4 in long dentations, a wide oblique black-brown

spot is situate outwardly thereof. Between veins 3 and 5 are 2 black-brown spots on margin. Marginal band is wide and blackish. The yellowish fringes have a dark dividing line. South Saghalin.

10a. Genus: **Dexiadena** Filipj.

FILIPJEV has created this new Genus for the species — **arcta** Led. (Vol. 3, p. 173, pl. 41 a) and — **arctides** *arctides*. *Stgr.* (Vol. 3, p. 173, pl. 41 a) which is doubtless a genuine species. The superficial characteristics are identical *arcta*. with those of *Oligia*, but the genitalia differ. In *Oligia* the valve is hammer-shaped, here it is protracted with straight edge. Further the right valve is bladder-shaped with glandular formation inside and there is a brush of hairs on proximal edge of the 8th tergite.

D. arcta Led. (Vol. 3, p. 173, pl. 41 a). — **arctana** Strd. has dusky marginal area on forewings and more distinct markings. Siberia, Japan, Corea.

11. Genus: **Eremobia** Steph.

E. deckerti Hmps. (Vol. 3, p. 175). The older name — **pseudotrachea** Krul. should be adopted for this *deckerti*. species with *deckerti* as synonym. A specimen from the PÜNGELER collection is illustrated (19 h). *pseudotrachea*.

12. Genus: **Gerbathodes** Warr.

G. angusta Btlr. (Vol. 3, p. 175, pl. 41 b). As synonym to — **obscurata** Warr. we have to add *yokohama* *angusta*. *Strd.* Both are translations of the diagnosis of HAMPSON's "ab. 1" and are identical. *obscurata*.

13. Genus: **Atrachea** Warr.

A. sordida Btlr. (Vol. 3, p. 176, pl. 41 c). — **sordidula** Strd. has greyer ground colour of forewings and *sordidula*. postmedian area is coloured a bright rufous. — **cupreata** Mats. has a coppery colouration with obsolete trans- *cupreata*. verse lines, only the anterior line is distinct and double below mediana. From Honsho (Japan).

14. Genus: **Crymodes** Guen.

C. platinea Tr. (Vol. 3, p. 176, pl. 41 d). — **reisseri** Bub. (19 i) is a local race from the Sierra Nevada *reisseri*. with shade of colour as *zeta pernix*, yellow-grey, peppered with whitish and blackish, sometimes thus with a tinge of greenish, all markings distinct and complete. A wide band-like central shade is particularly prominent. SCHWINGENSCHUSS and ZERNY brought back a very similar but slightly darker and more brownish form from the High Atlas (Morocco). — **ferrea** Pglr. (Vol. 3, p. 176, pl. 41 d) is not a separate species, but a smaller, less *ferrea*. strikingly marked, more grey-brownish *platinea* form. The illustration was unrecognisable, we are giving a better one of this form (19 i).

C. mutica Chr. (Vol. 3, p. 176, pl. 41 d) is not to be recognised from the old illustration. The species *mutica*. is very close to *dumetorum* and we are giving a good picture of same here (19 k).

C. dumetorum Hbn. G. (Vol. 3, p. 177, pl. 42 a) is not related to *zeta*, but is certainly a genuine species. *dumetorum*. The illustration was poor and we are now giving a fresh picture of this peculiar wide winged species (19 k). — **bleonnensis** Schultz (19 k). A specimen from the PÜNGELER collection is now illustrated. *bleonnensis*.

C. bischoffii H.-S. (Vol. 3, p. 176, pl. 42 a). This illustration gives no proper representation of this *bischoffii*. handsome species. A better one is now given (19 k). It also occurs at Marash (Taurus). — **culoti** Schaw. from *culoti*. Corfu is very pale, body is almost straw-yellow, transverse lines and central shade darker grey, orbicular stigma pale yellowish. Hindwings whitish yellow.

C. zeta Tr. (Vol. 3, p. 176, pl. 41 e). — **zetina** Stgr. should be transferred from here and placed in the Genus *Hadula* (vide p. 113 of this Supplement). — **transversata** Warr. is synonymous with the older — **fasciata** *fasciata*. *Büren v. Salis*. The illustration is rather too pale, but otherwise quite good.

C. farinulenta Chr. was omitted from Main Volume. According to the brief description, it is most close *farinulenta*. to *zeta*. The ♂ antennae ciliate. Forewings yellow-grey, densely peppered with black-brown. Transverse lines and stigmata, as well as costal spots as in *zeta*. It differs on underside by 2 obsolete transverse bands on forewings, one in centre and one before margin. Length of forewings: 18 mm. Described from Kasikoparan.

C. maillardi Hbn.-G. (Vol. 3, p. 177, pl. 41 f). ZERNY's view that *zeta* and *maillardi* are conspecific, does *maillardi*. not seem to be the case according to my own and HEYDEMANN's observations. There are differences in the genitalia, that would exclude the possibility of their being one species. Both occur in Albania. — **variegata** *variegata*. *Wehrli* (19 k) are brightly marked specimens, costa and veins dusted with grey-white, transverse and sub-

terminal lines pale yellow with black edges. There is a yellow streak through the reniform stigma to outer *obscura*. transverse stripe. Zermatt. — **obscura** Wehrli are completely grey-black specimens without any brownish hue *infuscata*. and scarcely visible paler transverse lines. — **infuscata** Schwing. is probably the same. The specimens are suffused by black and markings are barely discernible. Only reniform stigma is apparent with faint whitish surround. Salzburg.

ingloria. **C. ingloria** A. B.-H. (19 l) is smaller and has wider wings than *maillardi*, colouration varies from blackish ashen grey to olive yellow, markings obscure. Transverse stripes scarcely paler with black edges on inner sides, the outer one dentate with black dots at points. Subterminal line somewhat paler with small sagittate marks anteriorly. Orbicular and reniform stigmata with paler centres. Hindwings monotonously grey-blackish with pale central line; fringes yellowish grey with paler tips. Wing expanse: 39—42 mm. Sajan territory.

furva. **C. furva** Hbn. (Vol. 3, p. 177, pl. 41 f). *sylvicola* Ev. should be removed from here, as it belongs to *nictitans*. *rubrireana*. — **nictitans** Lenz are specimens with prominent pale reniform stigma. Described from S. Bavaria. *italica*. — **italica** Trti. & Ver. (19 k) are very large specimens of pure brown ground colour and very distinct, narrow yellowish markings, that contrast sharply. Hindwings paler in disc, marginal band more diffuse but darker. Such specimens approach *freyeri* Err. Italy.

vicaria. **C. vicaria** Pglr. (Vol. 3, p. 186, pl. 43 f). This was classified under *Luperina* in Main Volume, in which HAMPSON concurred. According to specimens before me, which emanate from PÜNGELER himself, it should certainly be placed here in the vicinity of *maillardi*. Covering of thorax, the crests on abdomen etc. all coincide. The illustration was bad, we are giving a fresh one here (19 l). Perhaps *P. xylinoides* enumerated on p. 158 would also best be placed here.

rubrireana. **C. rubrireana** Tr. (Vol. 3, p. 177, pl. 41 g). GUTH has latterly specialised in this species and its interesting group of forms. The type is the black-brown form with somewhat rufous central area. It has black transverse lines with slightly paler edges and red-brown stigmata. Reniform stigma somewhat dusted with yellowish, frequently with a pale brown streak to postmedian and yellowish subterminal line. We are giving a better *plöttneri*. illustration of this nice species (19 l) as the old one was unsatisfactory. — **plöttneri** Hannem. appears to me to be the same as type, but from the very scant description it would seem that the pale central bands are extinct. *hercyniae*. Described from the Upper Harz. — **hercyniae** Stgr. is another form from the same locality with brown ground colour and whitish reniform stigma. Transverse lines edged with white and a similar subterminal line. We *abnoba*. are illustrating a typical specimen of this form (19 l). — **abnoba** Guth (19 l) the fine form from the northern Black Forest, especially from around Pforzheim, with deep black colour and very wide pure white fascia and *intermedia*. stigmata, as well as white marginal area. — **intermedia** Guth the variable intermediary forms from the Harz *fennica*. mountains and southern Black Forest. — **fennica** Guth has chestnut-brown forewings; basal area admixed with grey; the black transverse lines with whitish edges on averted sides. Orbicular stigma yellow-brown, reniform stigma pale yellow, subterminal line brownish grey with darker inner edge. A variegated form from Kuusamo. *sylvicola*. — **sylvicola** Ev. (Vol. 3, p. 177, under "*furva*") is a large form from the Urals (Spasskoje), compared as to colouration with *brassicae* and *glauca*. It is grey-black, interspersed with paler grey; blackish transverse lines with whitish edges. Stigmata whitish almost devoid of brown shades. To be added to the localities is Upper Italy (Valdieri). The larva resembles that of *P. lithoxylea* and it feeds in the roots of *Calamagrostis silvatica*.

shibuyae. **C. shibuyae** Mats. is compared with *rubrireana*, but is much paler, reniform stigma smaller. Forewings brown, the anterior undulate transverse line is black with pale grey inner edge; the anterior line is double, black interfilled with grey. The round orbicular stigma is pale grey with brown centre. The longish reniform stigma is pale grey with black central streak. Claviform stigma small, dark with pale grey centre. Subterminal line pale grey and sharply dentate. A paler patch at apex and small black marginal dots. Hindwings grey with 2 darker transverse lines. Wing expanse: 45—46 mm. Saghalin.

15. Gattung: **Sidemia** Stgr.

depravata. **S. depravata** Btlr. (Vol. 3, p. 178, pl. 41 g, h). Here we must add as synonym: — *rasdolnia* Stgr. for which the Genus: *Rusidrina* Stgr. was created.

internigrata. *S. zollikoferi* Err. (Vol. 3, p. 178, pl. 41 h). — *uralensis* Strd. is synonymous with **internigrata** Warr. Both names refer to HAMPSON's "ab. 1" and STRAND's assumption that his form differed from that of WARREN by the pale apex and anal area, was incorrect. It is especially stated in WARREN's original description that the blackening of the forewing only applied to the area between the submedian and subcostal nervures. I have now before me a specimen of *zollikoferi* also from Esthland.

püngeleri. **S. püngeleri** Schaw. (= *albipuncta* O. B.-H.) (20 a). This was described as a *Phragmatiphila* but in my opinion should be placed next to *zollikoferi*, even though hitherto only ♀♀ are known. Forewings monotonous

glossy dark brown with faint coppery sheen and a small white dot at lower end of cell, otherwise devoid of markings, except for slightly darker veins, which are dusted with grey in outer area. Hindwings quite pale brownish, very narrowly darker at margin. Nikolsk Ussurjisk.

S. acharis *Pglr.* (Vol. 3, p. 186) should be transferred from *Luperina* and placed here. The species is *acharis*, now illustrated (20 f).

S. standfussi *Wisk.* (Vol. 3, p. 178, pl. 41 i). The illustration was bad, a better one is given here (20 a). *standfussi*. The species should now be known by the older name — **pozzii** *Curó* (1883!). As a further synonym — *nicacensis pozzii*. *Culot.* This fine and universally rare species is reported by BOURSIN to occur also in France (La Bessée-sur-Durance), Hautes Alpes at an altitude of 1000 m. It is further recorded from Italy (Romagna).

S. doerriesi *Stgr.* was omitted from Main Volume. It is classified by its author next to *subornata* (Vol. 3, *doerriesi*, p. 179, pl. 41 h), but is really a *Cucullianae* (*Crino*). Forewings dark brown, transverse lines scarcely discernible, slightly darker in the ground colour. The two central ones slightly more apparent, especially in paler inner marginal area, where they have broad grey-white edges on averted sides. Also apical half of costa is paler brownish so that there the outer transverse line is boldly dentate and distinctly visible. Subterminal line is very distinct and dentate, pale brownish with spotted darker inner edge. The pale orbicular stigma is small, oval with dark centre. Reniform stigma is light brownish and narrow. Hindwings impure yellow-grey, peppered with blackish and with dark central lunule, postmedian and wide subterminal bands. A black lunular marginal line before the pale fringes. Wing expanse: 42 mm. From one ♀ from the Apfel mountains. Probably *Crino altijuga* *Kozh.* is a synonym, compare p. 140 and what was said there.

S. abrupta *Ev.* (Vol. 3, p. 79) is not a *Hadena*, but should be classified here, near to *speciosa* *Brem.* (Vol. 3, *abrupta*, p. 178, pl. 41 h). The type is from Syr Darja and is darker, perhaps this is only an individual aberration of — **johmi** *Pglr.* (20 a), which denotes the usual paler form. Forewings short and wide, pale grey, central and marginal *johmi* areas darker with paler veins and 2 dark patches at base above inner margin. Transverse lines whitish, the anterior one almost straight, the posterior line faintly undulate. The upper grey stigmata with paler surrounds, orbicular stigma small, round; reniform stigma narrow; claviform stigma small with dark surround. Subterminal line obsolete, a blackish marginal line before the brown-grey fringes. The whitish hindwings dusted with grey, widely darker at margin; a delicate dark postmedian band. Fringes whitish. The ♀ is darker, inclined the grey-black. Syr-Darja.

S. koshantschikovi *Pglr.* (20 a) resembles a small pale *pozzii*, but must be placed in the last section owing *koshantschikovi* to the only faintly ciliate antennae with their smooth shaft. Forewings pale brownish grey, basal streak and claviform stigma indicated by dark scales. Stigmata obscure. Posterior transverse and subterminal lines indistinct. Marginal line pale, fringes brownish grey. Whitish hindwings dusted with grey with dull grey marginal band. Syr-Darja.

S. aflouensis *Rothsch.* is very close to *koshantschikovi*. Antennae brown, head and thorax slate-grey, *aflouensis* abdomen yellowish grey. Forewings slate-grey, no anterior transverse line, the posterior line delicate, black, dentate, curved with pale grey outer edge. Both upper stigmata indistinct, claviform stigma however prominent. Hindwings white. Wing expanse: 34 mm. From one ♂ from Aflou (Algeria) captured in October.

S. fulva *Rothsch.* was originally described as a form of *Meganephria oxycanthae* and therefore probably *fulva*. must have some resemblance. Ground colour said to be unicoloured cinnamon-orange, markings fairly diffuse. Hindwings not described. From Algeria in October.

S. hoenei *Mats.* (20 a). Forewings dark grey with black-brown markings, double subbasal with black *hoenei* cuneiform basal streak, which intersects the double anterior transverse line. Central area rather darker, the cell is grey-white between the stigmata with black surrounds. Reniform stigma with black-brown centre. Posterior transverse line double, dentate, with whitish interfilling, projecting sharply outwards on veins 3 and 4. Subterminal line whitish. Hindwings white with grey marginal band. Honsho.

S. fissipuncta *Haw.* (Vol. 3, p. 179, pl. 41 i). — **cinerea** *Heinr.* has pale ashen grey colour without any *cinerea* admixture of yellowish or brownish tones. Digne. — **obsolescens** *Lenz* has all markings extinct, only the outlines *obsolescens* of the 3 stigmata and the subterminal line are retained.

S. oberthüri *Rothsch.* (20 b). The author considers this moth, that was described as a form of *fissipuncta*, *oberthüri* to be a genuine species and in this I concur. It is larger, more robustly built and with wider wings. Forewings somewhat paler in ground colour, more dusted, markings fainter and less distinct. Stigmata much larger, subterminal band straighter and less excurved. Posterior transverse line well developed and closer to reniform stigma. Algeria (Batna), April to July. Before me are specimens from the Caucasus (Achalzich) that agree identically with those from Algeria. — *orenburghensis* *Bartel* and *plebeja* *Stgr.* are both similar and it will be

necessary to go into matters further to establish the question of identity. It seems quite possible to me that *oberthüri* and *orenburghensis* are conspecific.

glaisi. **S. glaisi** Luc. appears to very closely resemble the group of *fissipuncta-oberthüri* species, just discussed. Forewings very pale brownish grey, very monotonous, only the dark triangular spot between the orbicular and reniform stigmata is distinct. Both transverse lines are barely visible, subterminal line slightly more distinct. The ♀ is rather more clearly marked and a shade darker. Hindwings brownish grey with widely dark marginal area. Size is not indicated. Algeria (Sidi bel Abbès), in August.

judaica. **S. judaica** Stgr. (Vol. 3, p. 179, pl. 41 d). The illustration was unrecognisable, a better one of this species from Palestine is now given (20 b).

17. Genus: **Heterographa** Stgr.

fabrilis. **H. fabrilis** Pglr. (20 b) is very similar to *zelleri* and *puengeleri*. Forewings are paler, the black costal markings fainter, all markings slightly less distinct. Orbicular stigma larger; reniform stigma paler, less constricted, the blackish dusting in cell fainter, a black inner marginal spot at base. The posterior transverse line is almost straight, nearer to reniform stigma. The black longitudinal streaks in subterminal shade are absent. Hindwings white, outwardly grey with bolder central lunule. Kuldja, Ili territory.

20. Genus: **Ebolema** Hmps.

misella. **E. misella** Pglr. (Vol. 3, p. 181). We are now able to illustrate this species (20 b) from a specimen from the PÜNGELER collection.

21. Genus: **Margelana** Stgr.

flavidior. **M. flavidior** Wgnr. (20 b) has markings identically the same as *M. versicolor*, but forewings are pale canary-yellow. The sinuate marginal line of *versicolor*, that extends parallel to margin, is in this case straight and proceeds direct to apex of forewings. Hindwings pure white. Also differing on underside by the almost pure white colouration without any darker shading, such as in *versicolor*. From Akshehir, in September.

discrepans. **M. discrepans** Stgr. (Vol. 3, p. 181, pl. 41 l). The illustration in Main Volume gives no conception of this brownish species and we are giving a better picture here (20 e).

veternosa. **M. veternosa** Pglr. (Vol. 3, p. 181). We are now able to give an illustration of this rare species (20 c), from Askhabad.

21a. Genus: **Heptapotamia** Alph.

This Genus, that was omitted from Main Volume, is apparently very close to the Genus *Margelana*, according to information supplied by FILIPJEV, who has examined the types in the Museum at Leningrad. However in the original description it was stated expressly that the eyes were eiliated ("oculis circumciliatis"). Antennae as in *Ulochlaena* i. e. with long bipectinations. Thorax and sides of abdomen with long and dense hairs. Palpi straight and porrect, with long hairs on underside. Had it not been for FILIPJEV's remarks, I would have placed this moth near *Derthisa* among the *Cucullianae*. Only 1 species:

eustratii. **H. eustratii** Alph. Forewings faintly glossy yellow-grey. Central area between the transverse lines somewhat darker. Basal area yellowish white, submarginal area similarly paler. Anterior transverse line commences at costa in a bold spot and forms 2 basally concave arcs to inner margin. The dentate outer transverse line is only faintly curved, both lines pure white, as is also the large reniform stigma. Orbicular stigma is punctiform. The extremely long grey fringes are checked with white on veins. Hindwings pure white. Wing expanse: 37 mm. Arganaty (Semiretshje).

22. Genus: **Eremopola** Warr.

This Genus is a typical *Cucullianae* and was already referred to on p. 150 of this Supplement. The remaining species are somewhat doubtful in regard to their classification here and require further elucidation. We are enumerating them meanwhile under *Margelana*, where both HAMPSON and PÜNGELER had placed them.

23. Genus: *Centropodia* Hmps.

This Genus must be re-named: **Scythocentropus** Speis. as *Centropodia* was only introduced 6 years later.

inquinata. **C. inquinata** Mab. (Vol. 3, p. 182). We are now illustrating this species (20 c) that is distributed

over Algeria, Tunisia to Egypt. — **ferrantei** Drt. (20 c) is a very pale sandy yellow desert form from Egypt. *ferrantei*.

23a. Genus: **Diadochia** Pglr.

Proboscis developed; palpi medium long, straightly porrect with pendant last segment and long hairy central section. Frons with short conical projecting process in centre. Antennae with short cilia. Head and thorax with smooth hairs, no tufts. Fore tibiae with a short claw. Only 2 species:

Generic type: *D. saca* Pglr.

D. saca Pglr. (20 d). Forewings pointed with oblique outer margin, ashen grey, no transverse markings, *saca*. with indistinct stigmata. The small orbicular stigma extended to a point towards margin. Reniform stigma of usual shape with darker centre. Claviform stigma long and narrow. The veins have dainty darker streaks in marginal area. Hindwings in ♂ pure white with a few grey scales and darker veins in marginal area; in ♀ they are more heavily dusted with grey. The species resembles *Scyth. scripturosa* but is easily distinguishable by the more pointed forewings and purer grey colour and absence of all transverse markings. Wing expanse: 33 mm. Syr-Darja (Baigacum), September.

D. esurialis Pglr. (20 d) is very close to the preceding species, but has less pointed wings with rather *esurialis*. more undulate margin. Claviform stigma is absent, reniform is larger and generally markings are more definite. There is a posterior transverse line of paler lunules and an irregularly sinuate subterminal line. Hindwings with distinct marginal line and on underside with a decided black central spot, which is not present in *saca*. Syr-Darja (Baigacum), September.

23b. Genus: **Anataëlia** Drt.

This Genus differs from *Scythocentropus* by the second segment of palpi which is not scaled, but has a long beard-like brush of hair. Antennae of ♂ with pyramidal serrations and long fascicles of cilia. Thorax covered with single hairy scales; triangular tuft anteriorly. Abdomen with crests. Fore tibiae with bold spur on outer side. Neuration as in preceding Genus. Only 1 species:

A. orotavae Drt. (20 c). A large species. Forewings ochreous yellow, peppered with brownish having *orotavae*. fuscous central area and black basal streak. Transverse lines double, a white dot each on median and submedian nervures before the anterior line. The posterior line undulate and dentate, the veins beyond same dusted with black and white. Orbicular stigma small, oblique, elliptical, pale brown; reniform quadrate, white with black surround. Subterminal line pale with brown sagittate spots anteriorly, marginal area outwardly black-brown, except for the pale apex. Hindwings grey-brown. Teneriffe (Orotava).

25. Genus: **Pseudopseustis** Hmps.

P. tellieri Luc. (Vol. 3, p. 182) (20 d). We are now able to illustrate this species. As synonyms are to *tellieri*. be added: *pieretti* Culot nec Bugn. (*Heliophobus*!) and *diacrisioides* Roths. (*Harpagophana*!). It occurs also in Algeria (Guelt es Stel and El Mesrane) in October, November.

25a. Genus: **Jaxartia** Pglr.

This is meanwhile classified next to *Pseudohadena*, but has completely stunted proboscis. The medium short palpi are densely haired, projecting straight forward with pendant last segment. Frons without projection. Antennae of ♂ with long pectinations to tip; of ♀ with delicate short bristles. Head and thorax densely haired, without tufts. Fore tibiae without claw, the first section of fore tarsi with 8 horny hooks. Abdomen extended, stumpy in ♀ and without crests. Only 1 species:

J. elinguis Pglr. (20 d). The whitish forewings are coarsely bestrewn with brownish grey. Anterior *elinguis*. transverse line uniformly sinuate with somewhat paler inner edge. Posterior line with pointed dentations, parallel to margin, outwardly there is a pale, similarly dentate band with a dark edge. Stigmata somewhat paler, rather small and indistinct. Hindwings brownish white, dusted with grey, with faint central spot and grey arched line and somewhat dusky marginal area. Syr-Darja (Baigacum), September.

26. Genus: **Pseudohadena** Alph.

P. laciniosa Chr. (Vol. 3, p. 182, pl. 41 l). The illustration was not good, a better one is given here (20 d). *laciniosa*. FRITZ WAGNER has captured this species in Asia Minor (Akshehir) and this is probably the western boundary of its distribution.

P. impedita Chr. (20 d) was omitted from Main Volume. It is close to *presbytis* Hmps. (Vol. 3, p. 183, *impedita*. pl. 43 a) but larger and with a more reddish tone. The posterior transverse line is extinct, the stigmata smaller

and more faintly marked with black. The black subapical, subterminal markings are rather more delicate and fainter. Hindwings darker. Russian Armenia, Kasikoparan.

roseotincta. *P. chenopodiophaga* Rmbr. (Vol. 3, p. 183, pl. 43 a). — **roseotincta** Trti. ("rosea" in indice!) is a form that is suffused with brownish rose; from Tripoli (Sidi Messri); probably this name will be found to be synonymous with *erubescens* Stgr. which also denotes form suffused with red and which was described in 1901.

adscripta. **P. adscripta** Pglr. (20 e) is nearest to *siri* Ersch. (Vol. 3, p. 183, pl. 43 a). It is somewhat larger than *siri*. Forewings more yellowish, markings more variegated, basal streak much less distinct, central nervure not blackish. Hindwings uniformly dusky, only paler in inner half. It is more easily distinguishable by the under-side; in *siri* this is uniformly pale with clear dark central spot, whilst in *adscripta* it is entirely dark grey except for the pale marginal area and central spot is almost submerged. On hindwings the arched line is very pronounced. The ♂ antennae with only very short cilia. From E. Turkestan (Aksu, Chamil Hami).

pugnax. **P. pugnax** Alph. (Vol. 3, p. 183, pl. 42 l). The illustration in Main Volume was a very poor copy and quite unrecognisable. We are now giving a good picture of this rare species (20 e).

minuta. **P. minuta** Pglr. (Vol. 3, p. 183, pl. 43 a). The Genus: *Gryphadena* Kust. was introduced for this species, as the fore tarsi have 5 stout horny claws.

evanida. **P. evanida** Pglr. (20 e) is nearest to *halimi* Mill. (Vol. 3, p. 184, pl. 43 b) but it is somewhat smaller with shorter wings. Colouration is paler and duller, scales without gloss, markings diffuse. Forewings pale yellowish grey, the anterior transverse line replaced by 3 spots that are in a straight line. No claviform stigma. The 2 cell stigmata very large but indistinct, the space between them dusky. Posterior transverse and subterminal lines quite extinct. Hindwings pale grey with faint discal spot and arched line. Syr-Darja (Baigacum).

iberica. **P. iberica** O. B.-H. (20 e) is also close to *halimi*. Forewings grey with greenish grey sheen and somewhat darker median area. Both transverse lines are double and with black edges. Orbicular and reniform stigmata distinct with delicate black surrounds. Orbicular stigma is elliptical at top, pale to costa. The lower outer angle of reniform stigma is much enlarged. Hindwings whitish grey with white fringes. Head and thorax greenish white. From a single ♀ from Castile (S. ILDEFONSO). Wing expanse: 44 mm.

seposita. **P. seposita** Pglr. (20 e) would best be placed to *pexa* Stgr. (Vol. 3, p. 184, pl. 41 l) although it does not appear closely related to any species. Forewings pale grey, somewhat admixed with brownish, the anterior blackish transverse line double, almost straight and regularly dentate. The posterior line simple, sharply dentate. Both upper stigmata with faintly darker centres, orbicular small, between it and reniform stigma a diffuse, wide, brownish central shade. The subterminal line is very faintly paler and has a darker inner edge. Hindwings dark grey with dusky arched line and white-grey fringes. The ♂ antennae with stout pyramidal serrations having long fascicles of cilia. Syr-Darja (Baigacum), in October.

26a. Genus: **Usbeca** Pglr.

The Genus is anatomically close to *Pseudohadena*, though superficially it looks very different and reminds one somewhat of *Crymodes dumetorum*. Four years later the Genus was again described by REBEL as *Acrosphalia* and placed between *Bryophila* and *Acronycta*, where in certain respects it fits in quite well. Proboscis weak, palpi short, porrect, densely scaled. Frons with round truncate process with 2 cavities, posteriorly with a horny disc. Antennae almost simple, short and thicker in ♂ than in ♀. Thorax covered with hairs and broad scales. Abdomen short and compressed, no tufts. Legs short, fore tibiae with 2 short spurs outwardly, similarly fore tarsi with 6 horny hooks outwardly. Neuration as in *Pseudohadena*. Wing contour short and wide. Only 1 species:

cornuta. **U. cornuta** Pglr. (20 f). Forewings dull dusky grey with faintly greenish sheen, indistinctly marked. The round orbicular and wide reniform stigmata discernible by their blackish surrounds. The posterior transverse line with slightly paler outer edge. Subterminal line indistinctly paler, commencing in a fairly large yellowish costal spot. Hindwings uniformly dark grey with slightly paler fringes. Syr-Darja (Baigacum), in August. — **kulmburgi** Rbl. (20 f) is more of an olive-brown, the markings also are more distinct, both transverse lines simple, black, sharply dentate, the outer one with spotty white subanal edge. Hindwings of ♂ paler, whitish grey. Nikolsk (Ussuri). Therefore the species is probably fairly widely distributed in Asia.

26. Genus: **Palluperina** Hmps.

HAMPSON introduced this name instead of *Luperina* Bsd., which was not in any way described in the Index Method. 1829, and it was used in 1840 for *leucophaea* (*Pachetra* Guen.) and therefore is no longer utilisable for our Genus.

P. testacea Hbn. (Vol. 3, p. 185, pl. 43 c). Illustration and description are correct. — **guenéei** Dbld. *guenéei*. (= var. A of *testacea*, according to GUENÉE). This denomination has created some confusion; these *guenéei* are actually a pale english form of *testacea*. This has been confirmed by TURNER. The species that has hitherto been held to be *guenéei*, is now classified as *incerta* Tutt under *nickerlii*. The genuine *guenéei* is as pale as *obsoleta* Tutt, but more boldly marked. It does not only occur in England, but is also found on the Continent. — **scotiae** *scotiae*. Strd. is a much darker brown form from Scotland.

P. amaliae Wgnr. (20 f) is a rather doubtful species. It is closest to *testacea*, but is larger and more stoutly built, wings are wider and with dense, remarkably soft and mealy scales. It is much darker, reminding one of *C. solieri* in colouration. Transverse lines are rather differently shaped, they converge much closer together below the cell, so that the central area is much condensed. The inner edge of the subterminal line is very dark at costa, so that the paler patch at apex contrasts more distinctly. Veins, especially in subcostal region, are dusted with bluish white. Fringes appear more scalloped on both pairs of wings. If this is not a genuine species, it is a good local race of *testacea* from Spain. The type is from Albarracin. Types have been sent me through the courtesy of A. FERNANDEZ, who has also found specimens at La Vid (Burgos).

P. nickerlii Frr. (Vol. 3, p. 185, pl. 43 d). This interesting and frequently overlooked species has now been found during the last few years almost simultaneously in many places in central and south Germany, so that now an almost continuous chain of localities is known from Prague through Saxony, Thuringia, Württemberg, over France to Spain, throughout which *nickerlii* is distributed. It generally occurs in hilly countryside where porphyry and coloured sandstone are found and where *Festuca ovina* and *Aira caespitosa* flourish; certain kinds of *Lolium* are also acceptable as foodplant. The yellowish white ova change a little later to pale brown and are laid in long chain-like rows between the covering leaves of the stalks of grass. The young larva is yellowish brown with darker head, the full-fed larva is not described. When young it bores down into the root and when grown feeds on the grass leaves just on the surface. The imagines occur end of August to mid September. — **unimaculata** Silbernagel has no orbicular stigma. — **pseudotestacea** Silbernagel are pale grey-brown specimens of the dark form from Prague, that thus closely resembles *testacea*. The illustration in Main Volume is unrecognisable, we are now illustrating a typical specimen from Prague (20 f). Specimens from Halle are also very dark, those from the Werra valley (Eschwege) are paler, more yellowish and variegated (20 f). — **tardenota** Joan. (20 g) is the form from around Paris that is inclined to earthy grey, thus approaching the Spanish specimens. They are clearly marked, but very variable. — **radians** Joan. veins of subterminal area prominently dusted with whitish. — **nigronotata** Joan. both transverse lines conjoined on submedian by a black longitudinal bar. — **graslini** Obth. still paler yellowish grey specimens from Spain and N. Africa. — **pieretti** Obth. (20 g) are very similar, but much smaller and more poorly marked specimens from the E. Pyrenees. — **incerta** Tutt (= *guenéei* auct. nec Dbld.) (Vol. 3, p. 185 as *guenéei*) (20 g) is the nice english form that approaches certain *tardenota* in appearance but is larger on an average and has longer more elongate wing contour. — **baxteri** South is paler and purer grey, the colour is not in the least ochreous yellowish. — **murrayi** Turn. corresponds in colouration and markings to the typical *incerta*, but differs by a contrasting paler marginal area in which the dark marginal lunules stand out more prominently. — **fusca** Turn. is a very dark grey melanic form without any yellowish shades, only in discal area is there a reddish brown sheen in certain light. — **minor** Turn. is a considerably smaller form (wing expanse: 29 mm) from Lytham. — **iota** Turn. has a black submedian longitudinal bar between the transverse lines and which corresponds so the *nigronotata* form of *tardenota* or the *x-notata* of *testacea*.

P. powelli Culot (= *pseudoderthisa* Rothsch.) (20 g) is distinct from the preceding and a genuine species. It has narrower wing contour, forewings are a pronounced cinnamon-brownish with faint roseate hue. Markings are more delicate. Forewings have a narrower cell with correspondingly smaller stigmata and a much more definitely angulated reniform stigma, which is protracted outwards at lower edge. Algeria.

P. irritaria A. B.-H. (20 g) is certainly a genuine species. It is very like *testacea*, but smaller on an average, wings wider and with less oblique margin. They are sandy yellowish to dusty grey, markings generally more diffuse, central area occasionally somewhat darker. The arrangement of the lines and stigmata scarcely vary from those of *testacea*, but the markings appear less variegated and more simply marked. It occurs in Algeria among typical *testacea*. — **dannehli** Drt. (20 g) is a larger more robust race from Italy. Colour of forewings varies from yellowish grey, which always has a brownish tone, to grey-black or deep brown-black. Markings are usually definite and clear. Stigmata larger and rounder, the central area wider than usually in *testacea*, fringes more clearly checked. Hindwings yellowish white with dark central spot. — **x-notata** Drt. is an analogous form to that of the other allied species with dark conjoining bar between the transverse lines. — **nigrescens** Drt. (20 h) is the deep black form. Sicily. — **sohn-retheli** Drt. (20 h) is the smaller mountain race from the southern Abruzzi (Pescocostanzo). Markings are sharper and more variegated. It varies much less than *dannehli*.

- dayensis*. **P. dayensis** *Obth.* (20 i) is possibly a poorly marked pale form of the preceding, a very variable, more ochreous yellow, not greyish coloured moth. ROTHSCHILD has very kindly sent me a short series which shows considerable variation. A further examination would seem necessary to ascertain whether they are all one species. In any case they are certainly not identical with *rubella*. Aflou, Batna, Lambessa, Geryville.
- kruegeri*. **P. kruegeri** *Trti.* (20 h) is a genuine species that is very like *sohn-retheli*; it is smaller, sleeker and with narrower wings. Forewings dark grey, the black marginal triangles very small; subterminal area is paler than the dark marginal area. Markings distinct and clear, the general impression is that they are more blotchy than allied species. Only known from Sardinia. — **minor** *Trti.* denotes especially small specimens. — **fusca** *Trti.* a dark dusky blackish form.
- tiberina*. **P. tiberina** *Sohn-Rethel* (20 h) is a large handsome species, related to the preceding, from Capri. It is a wide-winged species with truncate apex to forewings and somewhat more bulging outer margin. Colour of forewings is very pale ochreous whitish to yellowish grey, coarsely flecked with blackish, without any brownish or reddish admixture. Reniform stigma large, indistinct, slightly incurved on outer edge. Fringes with less distinct checks than in allied species. Markings generally very clear and distinct, transverse lines black and with long dentations, with white edges on averted sides. Markings can however also be more diffuse. Frequently there is a whitish streak from reniform stigma to margin. Capri, from September to mid October.
- sammii*. **P. sammii** *Sohn-Rethel* (20 h) is a further species that forms a transition to *rubella*. It is larger and more heavily built than the latter, ochreous whitish, flecked with ochreous yellow to black-brown. Markings rather blotchy. Marginal area deeper, transverse lines with dots on veins, costa rather darker brown with a very marked subapical rhombic costal spot. Reniform stigma frequently boldly brown with a characteristic blackish brown sagittate mark in lower half, the point of which projects beyond the stigmata. Fringes boldly checked. Hindwings yellowish white with darker marginal lunules. Southern Abruzzi (Alfedena, Pescocostanzo) in August and September.
- armoricana*. **P. dumerilii** *Dup.* (Vol. 3, p. 185, pl. 43 d). — **armoricana** *Culot* (20 i) is a monotonously dusky black-brown form, only the 2 stigmata with delicate white surrounds. Described from Bretagne, but also occurring elsewhere, for instance in Sicily. — **aequalis** *Schaw.* (20 i) are very pale ochreous yellowish forms almost devoid of markings; from Bišina, also occurring in Syria. — **hirsuta** *Wgnr.* (20 i) is genuine race from Asia Minor (Akshehir), that is larger on an average and more coarsely scaled. It can be distinguished by the more contrasting markings with very pale marginal and basal regions. Here also however all sorts of colour variations occur from blackish to reddish yellow. Hindwings also with bold central lunule on upperside. September and October.
- adriatica*. — **adriatica** *Stgr.* has grey-brownish forewings with olive hue. Orbicular and reniform stigmata unicolourous and very pale. The wide marginal area is also exceedingly pale. Hindwings snow-white in ♂, impure white in ♀, never however brownish. Trieste.
- P. desyllesi** *Bsd.* (Vol. 3, p. 185) should be deemed to be a form of *Tholera cespitis* (p. 109), as was mentioned there.
- rhododendron*. **P. rubella** *Dup.* (Vol. 3, p. 186, pl. 43 e). — *dayensis* *Oberth.* should certainly not be classified under *rubella*, but placed with *irritaria* as stated above. — **rhododendron** *Schaw.* has pale yellowish forewings with rich red colouration in the region of stigmata; both transverse lines are red, stigmata are absent. Subterminal line, marginal area and fringes are faintly rufous. From Mostar, also from Digne.
- malitiosa*. **P. malitiosa** *Alph.* was omitted in Main Volume and according to information from FILIPJEV it should be classified in the Genus *Apamea* sensu *Stgr.* and placed here. Superficially it resembles a small *Polia* (*Anti-type*?). Forewings yellowish grey, the customary markings grey, interrupted grey marginal line. Hindwings white with dark marginal line and grey discal spot. Nothing much can be gleaned from this very short description. Wing expanse: 33 mm. From one ♂ from Bogdo-ola. According to FILIPJEV there is, besides the type, a further darker ♂ specimen from Askhabad, captured in May, in the Museum at Leningrad.
- lacunosa*. **P. lacunosa** *Kozh.* According to a photograph of the type, which has been sent to me, this fairly closely resembles *ferrago*. Body and antennae pale brown. Forewings still paler than body, anterior and posterior transverse lines black-brown, both distinct, dentate. The postmedian area to the narrow marginal area is much paler with darker veins. Orbicular and reniform stigmata indistinctly paler, between the two a diffuse blackish streak. Hindwings brownish white with distinct dark crescentiform spot and postmedian line. Wing expanse: 42 mm. Sajan territory.
- umbrata*. **P. ferrago** *Ev.* (Vol. 3, p. 186, pl. 43 e). — **umbrata** *Herz* are much darker dusky brown specimens from Siberia.
- P. vulpecula** *Led.* (Vol. 3, p. 155, pl. 28 f) according to FILIPJEV, should be classified here.

P. vicaria Pglr. (Vol. 3, p. 186, pl. 43 f). This species has already been dealt with on p. 162 in the Genus *Crymodes*.

P. acharis Pglr. (Vol. 3, p. 186) is a *Sidemia*, vide p. 163.

30. Genus: **Trachea** Tr.

T. atriplicis L. (Vol. 3, p. 187, pl. 43 g) — **deviridata** Klem. is completely grey-violet without the *deviridata*. green patches. — *deviridella* Strd., described 4 years later, similarly has no green and is very probably identical. — **epixanthana** Mezger has all the green patches replaced by yellow, the white blotch is a pure white. Described from a freshly emerged specimen from Belgium. — **immaculata** Slevogt. Stigmata of forewings are eontingent, the blotch mark is quite absent. — **enarismene** Slastshevsky is probably the same, although in the original description only the absence of the blotch mark is mentioned without any reference to the stigmata. Esthland. — **inornata** Alph. differs from the type by the complete absence of green colouration on body and wings. Probably *deviridata* as well as *deviridella* are simply synonyms. *inornata* is described from Sarepta and Kasan.

T. subviridis Btlr. (Vol. 3, p. 16, pl. 3 f). In the Main Volume this was erroneously classified under *subviridis*. the *Acronycta*, whilst actually it should be placed here. — **fuscogrisea** Strd. is an east asiatic form in which the eustomary grey-white central area is dusted over with brown-grey.

T. yoshinoensis Wilem. is close to *askoldis* Obth. (Vol. 3, p. 170, pl. 40 f), which in the Main Volume was dealt with under *Parastichtis*, but which would be better classified here. Head and thorax white, collar with brown markings. Forewings white, peppered basally with brown. In centre of costa there is a double lobed brown spot, that extends downwards to nervure 1. It has a pale surround that encloses the orbicular stigma. The reniform stigma is outside of same and has a faint brown circumscription. At outer margin above the centre is a large brown spot and a further longer one before the anal angle. Fringes golden brown with dark checks. Hindwings grey-brown, paler at base. Wing expanse: 32 mm. Hondo.

31. Genus: **Euplexia** Steph.

E. lucipara L. (Vol. 3, p. 188, pl. 43 i) — **leonhardi** Rbl. (20 i) is not a separate species, but only a *leonhardi*. darker and dusker local subspecies; the differences in the markings mentioned by REBEL are not constant. Some specimens are exceedingly dusky. March, April and August, September in Algeria and Tunis. — **exotica** Strd. is the oriental form from east Asia, which is more of a bluish grey and less reddish in postmedian area of forewings.

E. hönei O. B.-Haas should be classified after *laetevirens* Obth. (Vol. 3, p. 189, pl. 43 k) which it closely resembles. It can however be immediately differentiated by the white hindwings with slightly smoky apex, whilst *laetevirens* has black-brown hindwings. The illustration of the latter species in Main Volume should have been rather more olive-brown to blackish in colouration of ground of forewings and not quite so reddish. On the other hand *hönei* is inclined to reddish brown. Both species have a bright metallic green spot and band markings. Wing expanse of *hönei*: 39 mm. East China (Mokanshan).

E. tibetensis Warr. Forewings dark olive-green with patches of blackish, a large pale green basal spot, transversed by a black subbasal line. Both transverse lines very indistinct. The two pale green stigmata have faint dark centres and are confluent on the mediana, extending below same. Subterminal line pale green with dentations on veins 3 and 4. Marginal area very dark over the centre and at anal angle. Fringes pale green. Hindwings white in basal half, outwardly dark black-brown. Wing expanse: 30 mm. Only one ♂ from Thibet (Chumbi valley).

E. albiclausa Warr. strongly resembles *E. chrysochlora* Hmps. from India (Vol. 11, p. 139, pl. 17 e). The green of the ground colour is however rather more inclined to grey than to yellow. The reniform stigma is dark olive-green with white edges on both sides. Marginal area heavily dusted with white, which is so dense at apex that a large white spot is created. Otherwise markings as in *chrysochlora*. Wassukow and Ta-tsien-lu in July and August.

32. Genus: **Trigonophora** Hbn.

T. meticulosa L. (Vol. 3, p. 190, pl. 44 a) — **ignicula** Dhl. is a still redder form than *roseobrunnea* Warr., the colouration is almost an orange-red and markings in central triangular area are not much darker. Sabine mountains (Subiaeo), Abruzzi (Majella). — **minor** Cabeau seems a superfluous denomination for a specimen from Belgium that measures 40 mm and is therefore not even abnormally small.

33. Genus: **Chutapha** Moore.

C. euplexina Rbl. (= *wollastoni* Rbl. nee Bak.) (20 i) should be placed in the I. section next to *wollastoni*. Head and thorax reddish brown, the latter with a black-brown posterior tuft. Abdomen brownish

grey with darker crests. Forewings dark brown with blackish central area that is outlined by 2 black transverse stripes. Both upper stigmata have black surrounds, the orbicular is obliquely oval, reniform yellow with brown spots at upper and lower ends. The subterminal line consists of minute pale spots with black inner edges. Hindwings pale brownish grey with central lunule, postmedian and wide dark margins. Teneriffe (Orotava) in April. I also have a specimen from Laguna (November) before me.

38. Genus: **Eriopus** Tr.

- placodoides*. **E. placodoides** Guen. (= *doleschalli* Fldr.) should be placed before *juventina* Cr. (Vol. 3, p. 194, pl. 44 d). This species that is widely distributed over the indo-australian territory and described and illustrated in Vol. 11, p. 160, pl. 19 b, also occurs in Japan on palaearctic territory.
- flavoresea*. *E. juvenina* Cr. (Vol. 3, p. 194, pl. 44 d) — **flavoresea** Dhl. is paler rose, also the yellow spots are paler and more extensive. Sabine mountains. — ab. **sdinkoana** Joukl is a somewhat more variedly marked aberration, in which the usual rose transverse bands and veins appear white. Described from Vienna and scarcely worthy of denomination.
- japonibia*. *E. rivularis* Wkr. (Vol. 3, p. 194, pl. 44 d) — **japonibia** Strd. denotes the redder specimens from Japan that were mentioned in the Main Volume (= ab. 1 Hmps.).
- terlana*. *E. latreillei* Dup. (Vol. 3, p. 195, pl. 44 f) — **terlana** Dhl. is a rare form from the S. Tyrol in which the discal area is widely white. — **anthracita** Wgnr. differs from normal specimens by the jet-black colouration of forewings, that in the ♀ obscures all markings except for the dots on costa, the indications of a subterminal line at apex and a pale dot at base. S. Dalmatia (Gravosa).

39. Genus: **Telesilla** H.-Schäff.

- subalpica*. *T. amethystina* Hbn. (Vol. 3, p. 196, pl. 44 f) — **subalpica** Dhl. denotes the relatively small and brightly marked race from the S. Tyrol. It is paler rose, admixed with glossy grey-olive and with richly coloured markings. Stigmata with white instead of rose coloured surrounds and white dashes on costa. Terlan.

40. Genus: **Callogonia** Hmps.

- virgo*. **C. virgo** Tr. (Vol. 3, p. 196, pl. 44 f) has now also been discovered at Lugano. — **ilonkae** Diosz. differs from type by the rosy-violet forewings; base of antennae, tips of palpi, thorax and hindwings are violet-red.
- ilonkae*. Hungary (Comitat Arad). — **roseonitens** Shelj. is a form described from Transcaucasia. It is intensively suffused with rose, the pale transverse lines are narrower and with distinct dark edges. Hindwings yellow-grey, similarly the fringes. From around Batoum, June—August.

44. Genus: **Aucha** Wkr.

- variegata*. **A. variegata** Obth. (Vol. 3, p. 197, pl. 44 g). Meanwhile it has been definitely ascertained that *flavotutcotineta*, *maculata* Obth. is the ♂ to the ♀ *variegata*. — **luteotincta** Strd. has yellowish forewings with brown instead of rufous markings. Amur. — **flava** Warn. (= *evanida* Pglr. i. l.?) (20 i) is an extreme form of the preceding, yellow, devoid of all spots and markings except for a grey shade in the upper half of outer margin. Hindwings duller black. Amur.

45. Genus: **Polyphaenis** Bsd.

- graslini*. *P. xanthochloris* Bsd. (Vol. 3, p. 197, pl. 44 g) — **graslini** Culot (20 k) is a large but rather narrow winged form found in Castile, Sicily and Algeria. It has dusky ground colour with a richer admixture of green, especially in basal area and at inner margin in central area. The space before the subterminal line is somewhat more dusky blackish. Hindwings are a rather more reddish yellow.
- prospicua*. *P. sericata* Esp. (Vol. 3, p. 198, pl. 44 g) — **prospicua** Bkh. (nec Hbn.) (= *ratisbonensis* Metschl) should be removed from the synonyms. It is the fine south german form, that BORKHAUSEN obtained from Scriba. It is only slightly darker than *mediolucens* Fuchs. *ratisbonensis* appears somewhat darker and fresher because it was based on bred specimens. We are illustrating *prospicua* (20 k). — **mediofuliginosa** Dhl. is the counterpart to the preceding form. Basal and discal areas are heavily black, especially towards inner margin where wide black patches are formed, only the outer margin is pale. The anterior transverse line is quite absent, the outer line is dark grey. S. Tyrol. — **melanochrata** Fdz. is a small spanish form with very dark forewings that have no green and also the transverse lines have no paler edges. Hindwings dark brownish yellow. Uclés (Cuenca). — **xanthosuffusa** Fdz. (20 k) is a pure yellow form, no trace of green, only the transverse lines and veins are grey. Uclés. The specimen illustrated is from Barbizon.

46. Genus: **Triphaenopsis** Btlr.

T. pulcherrima Mr. (Vol. 3, p. 198, pl. 44 h) — **deochreata** Strd. has no ochreous spot in reniform *deochreata*. stigma on forewings. China.

T. lucilla Btlr. (Vol. 3, p. 199, pl. 44 i). We have to add as a synonym to — **modesta** Warr.: — *puncti modesta*. *signata* Strd., — **perversa** Strd. (= *lucilla* Hmps.). BUTLER's type, which was described by HAMPSON as "ab. 2" *perversa*. of *lucilla*, has a large white spot in the outer half of reniform stigma. Besides the entire postmedian area, with the exception of the costal area, is dusted with white. The form that HAMPSON described as *lucilla*, which appears to be identical with WARREN's description, does not seem to be the genuine *lucilla*. For this reason STRAND gave this form the denomination: *perversa*. — **putealis** Mats. is somewhat smaller, has white orbicular *putealis*. and reniform stigmata, both with slightly darker centres and on hindwings there is a black-brown discal spot. Wing expanse: 32—38 mm. Hokkaido, Honsho. — **nikkonis** Mats. has pure white orbicular and reniform stig- *nikkonis*. mata without darker centres. Hindwings very pale yellowish with black-brown discal spot. Nikko. — **jezo- jezoensis**. **ensis** Mats. The orbicular stigma is obsolescent, reniform stigma snow-white. Transverse lines are almost extinct, only slightly visible and darker below mediana. Hindwings with oval yellowish patch in disc with indistinct discal spot therein. Hokkaido (Sapporo). — **inornata** Mats. is very like *jezoensis*, but reniform stigma *inornata*. is not white. Hokkaido.

T. cinerascens Btlr. (Vol. 3, p. 199, pl. 44 i) — **sachalinensis** Mats. has a thick black bar between the *sachalinensis*. two transverse lines on the submedian fold of forewings. S. Saghalin (Ichinosawa).

47. Genus: **Thalpophila** Hbn.

T. matura Hufn. (Vol. 3, p. 199, pl. 44 i) — **infumata** Höfer has uniformly sooty brown hindwings. *infumata*. From around Vienna. — **pallida** Rbl. is a very pale race from Croatia, especially the central area of forewings *pallida*. is often almost whitish. Hindwings similarly very pale yellowish white, marginal band narrower, often almost extinct. Zengg. Bred specimens from Dalmatia (Gravosa) are on the other hand much darker and frequently also smaller. — **provincialis** Culot are very distinctly marked specimens with contrasting colouration, black *provin-* and white, the outer edge of the anterior transverse line and the inner edge of reniform stigma being darkest. *cialis*. There is a reddish brown admixture in and behind the reniform stigma, as well as posterior to subterminal line. These brightly marked specimens emanate from Digne. — **iberica** Culot is a doubtful form, inclining to- *iberica*. wards *amathusia*. It is relatively small, hindwings pale, impure straw-yellow, forewings with paler veins, a pale posterior transverse line, the anterior line having two very sharp dentations. Ground colour brown with paler patches and a pale streak before apex. From Spain.

T. amathusia Rmbr. (Vol. 3, p. 200, pl. 44 k) is certainly a genuine species. The illustration given by *amathusia*. CULOT however is certainly due to some misconception, as it only represents a form of *matura*. The anterior transverse line certainly shows a very sharp dentation projecting outwards above the inner margin, somewhat as in *vitalba*, subterminal line is almost completely absent and the illustration requires further elucidation.

48. Genus: **Jambia** Wkr.

J. nigella Hmps. Thorax black-brown, abdomen whitish, suffused with brown, with black basal tuft. *nigella*. Forewings black-brown, dusted with olive-grey. Transverse lines double, black, consisting of widely separated fasciae; there is a pale patch beyond the anterior line, then follows a darker shade. The stigmata have pale blackish surrounds and with dark central dots, the reniform stigma is constricted. Subterminal line brownish white. Hindwings pale reddish brown with whitish fringes and brown basal line. Wing expanse: 24 mm. Central China, Hupeh province. In an aberrative specimen the oblique pale patch behind the antemedian is white, somewhat speckled with brown.

49. Genus: **Bryoleuca** Hmps.

trilinea B. Baker (Vol. 3, p. 200, pl. 48 b) that belongs here, was dealt with under the *Bryophilinae* on p. 22 of the Supplement.

51. Genus: **Chytonix** Grt.

C. olethria Wilem. & West is very close to *C. albipuncta* Hmps. that is described in Vol. 11, p. 44 and *olethria*. illustrated on pl. 4 h. Actually the latter also occurs in palaearctic territory in W. China. *olethria* is to be classified immediately after *fodinae* Obth. (Vol. 3, p. 200, pl. 44 k). Body sandy brownish with darker admixture. Forewings similarly coloured with a large black-brown spot in basal half that extends on costa to anterior transverse line, obliquely from costa to median fold, thence parallel with inner margin to posterior line. From there downwards to inner margin, behind the cell with quadrate white patch. Orbicular and reniform stigmata with delicate black-brown circumscriptions. Above same on costa there is a triangular black-brown spot, the point of which touches the orbicular stigma. The postmedian line is delicately black-brown. The subterminal area is black-brown like the hindwings. Wing expanse: 24 mm. Japan (Shikoku).

52. Genus: **Stilbina** Stgr.

- numida*. **S. numida** Obth. (Vol. 3, pl. 201, pl. 42 c) is not a *Hypeuthina*, but certainly a *Stilbina*. The ova are pale yellow, then salmon red. Larva is grey or reddish white, laterally paler reddish grey speckled with pale brown minute dots. The dorsal line is pale grey-brown, subdorsal whitish, interrupted below and with brown edge with wide dark brown undulate stigmatal having white upper and lower edges. Head yellowish with black-brown spot on either side. It feeds on various kinds of grass and resembles a *Leucania* larva, feeding only at night. It casts its skin 6 times and pupates in the earth in a cocoon. — I have before me a fine series of both sexes and it shows considerable variation. The ground colour varies from white to yellowish, pink and grey, markings are bold and rich or faint and sparse. To judge by these — **mirabilis** Trti. held by its author to be a genuine species, cannot be distinguished from many of these specimens of *numida*. The name may be used to designate the somewhat smaller, paler race with paler forewings. Cyrenaica. As *numida* cannot be recognised from the illustrations in Main Volume, good illustrations of both sexes are now being given here (20 k).
- koreana*. **S. koreana** sp. n. (20 k). As I have before me only 2 ♀♀ with simple antennae, that have a badly rubbed thorax, I cannot decide whether there was a tuft or not. I am meanwhile placing this interesting species to *Stilbina*. The double lobed process on frons is much bolder than in the two other species and is about as in *Metalopha*, but with only 2 projections instead of three. Otherwise all characteristics agree with *Stilbina*, veins 6, 7 of hindwings are short-stalked. Thorax and forewings are creamy yellow, orbicular and reniform stigmata have sharp black circumscriptions, the former is almost completely filled with black. Subbasal and the two central transverse lines partially visible by an appression of black scales, the posterior transverse line being the most complete. Subterminal line and other markings are completely absent. Hindwings glossy pale brownish grey, a slightly darker band-like patch before margin, fringes long and creamy white. Underside of forewings is grey-brown, that of hindwings creamy white. Described from 2 ♀♀ from Corea (Silver mountains) in the possession of Dr. E. WEHRLI, types in the collection of Dr. DRAUDT.

53. Genus: **Hypeuthina** Led.

- fulgurita*. **H. fulgurita** Led. (Vol. 3, p. 201, pl. 48 b) also occurs in the Taurus (Marash) according to a specimen captured in September and sent to me by Mr. DANIEL for classification. Ova obtained by Dr. BODENHEIMER in November, are at first reddish, then later bluish like poppy seed. The larvae hatch after 8 weeks and in the first stages are transparent grey-green with black dotted heads. When full grown they are sleek, very variable, ground colour brownish white with olive-yellow, iron-grey or black wide dorsal band. This is sometimes traversed by 4 fine whitish purled longitudinal lines enclosing darker rhomboid marks. Occasionally also there are x-shaped subdorsal markings, the space between same often having rufous spots. It is polyphagous on low growing plants and is hidden by day. The larva is full-fed in about 5 weeks and is fairly easy to breed up till the time of pupation, but then, like the more southerly *Ocnogyna*, it becomes very restless and after a long period of racing around, the majority perish. A few imagines emerged in March of the following year and there are probably 2 generations. We are illustrating one of the bred specimens (20 l).

57. Genus: **Delta** Saalm.

- peterseni*. **D. peterseni** Christ. (Vol. 3, p. 203, pl. 42 c, d) is not a *Zenobiinae* but should have been classified as a genuine *Hadeninae* after *Barathra brassicae* (Suppl. Vol. p. 96) in the Genus *Trichorhiza* Hmps., that was especially created for it. The Genus differs from *Barathra* by a rounded process on frons that is excised below and by the absence of the curved spine or claw on foretibiae.

58. Genus: **Lithomoia** Hbn.

- virgata*. **L. rectilinea** Esp. (Vol. 3, p. 203, pl. 42 d) — **virgata** Tutt (20 l) denotes specimens in which the dark brown median area of forewings extends uniformly up to the costa. — **grisea** Spul. are specimens of a greyer colouration, without brown.

59. Genus: **Pulcheria** Alph.

- cinescens*. **P. cinescens** sp. n. (20 l) is the same shape and has the same arrangement of markings as *catomelas* (Vol. 3, p. 203, pl. 42 d) of which we are giving a better illustration here (20 l). Forewings are completely dusted with bluish grey, so that the markings are obscured and only the stigmata and the commencements of double transverse lines on costa are slightly more apparent. There is a small oblique streak subapically between 5 and 7. Hindwings grey-brown, paler at base, with faint brownish postmedian and whitish fringes. Syr-Darja (Baigacum). Type in the collection of PÜNGELER in the Berlin Museum.

61. Genus: **Rhabinopteryx** Christ.

R. subtilis Mab. (Vol. 3, p. 204, pl. 42 d, e). The illustration is good. The larva is dorsally greenish *subtilis*. white with red longitudinal lines, the lateral lines have delicate white edges above and below. It feeds on the seeds of *Plantago albicans*.

62. Genus: **Epimecia** Guen.

E. ustula Frr. (Vol. 3, p. 204, pl. 42 e). The illustration in Main Volume leaves a lot to be desired *ustula*. and we are giving a better one here (20 l). The western (french and spanish) specimens are strikingly different from the much smaller and paler dalmatian form (20 l), which I am designating — **dalmatica** f. n. — **obscurior** *dalmatica* Wgnr. (20 l) is a much darker spring generation from S. Dalmatia, which however also occurs in quite similar *obscurior*. specimens in Hungary.

E. nelvai Roths. Described from 1 ♀, has grey-brown head and thorax with darker admixture, ab- *nelvai*. domen is pale yellowish grey. Forewings grey-brown with dense dark brown striations, 3 oblique streaks in centre of costa, the two upper stigmata brown. Below mediana a white longitudinal streak from base to margin and merging in same a black longitudinal band. Hindwings yellowish grey, dusted with grey-brown. Wing expanse: 28 mm. From Batna (Algeria).

64. Genus: **Stilbia** Steph.

S. anomala Haw. (Vol. 3, p. 204, pl. 42 e). The illustration was a poor one, a better one is now given *anomala*. (21 a).

S. philopalís Grasl. (Vol. 3, p. 205) is not a form of *anomala* but a genuine species. We are illustrating *philopalís*. this nice little species from a bred specimen (21 a). It also occurs in Spain.

S. calberlae Failla (Vol. 3, p. 205) is also a genuine species, that differs materially and reminds one *calberlae*. somewhat of *A. kitti* in the depth of the colouring. Also this species is now illustrated (21 a). Hitherto it has only been known from Sicily, but OBERTHÜR notifies its occurrence in Tunis. — **andalusica** Stgr. is the spanish *andalusica*. form and should be classified here and not to *anomala* or *philopalís*.

S. faillae Pglr. (Vol. 3, p. 205, pl. 42 e) cannot be recognised from the illustration in Main Volume *faillae*. and we are giving a better picture here (21 a). This interesting species also occurs on Capri.

S. turatii Luc. is very like *faillae*, but is smaller and darker, smoky reddish grey. Forewings with 2 *turalii*. blackish spots before and between the stigmata, the subterminal line is less dentate. Hindwings paler grey, somewhat lighter in disc. Thorax quite black, abdomen grey. The antennae are shorter. According to TURATI this species is midway between *faillae* and *calberlae*. It occurs in Algeria (Tarf) in September and also in Tunis (Ain Draham).

S. bongiovannii Trti. (21 a) is still smaller than the very similar *turalii*. It is more gracefully built *bongio-* *vannii*. than the latter, with more pointed apex. Forewings black-brown with reddish sheen, stigmata paler grey, before and between them small blackish dots. The anterior transverse line is only faintly indicated at costa, the posterior line consists of dark brown lunules and it has a white edge. Between it and an indicated central line, the ground is somewhat dusted with grey. Marginal area inclined to chestnut brown, in which a white subterminal line is situate. Hindwings whitish grey-brown with central lunule indicated. Thorax rufous brown. Benghazi (Berca), Cyrenaica.

S. algerica Culot (= nisseni Stertz) (21 a). Forewings very pale bluish brown with black basal streak *algerica*. below mediana. Cell and patch behind same are black with the small light stigmata therein. The orbicular stigma is often only a pale oblique dash. On the margin there is a blackish shade with dentate inner edge. Hindwings silky, glossily grey-white. Algeria.

S. concolor Rüb. is unknown to me and its classification appears uncertain. From the rather insuffi- *concolor*. cient description, the antennae seem to resemble those of *Praestilbia armeniaca* Stgr. rather than those of *S. anomala*, whilst the neuration agrees with that of the latter. Palpi are bolder than in either of the species named, porrect, the central segment with long coarse scales below. Forewings wider than in *anomala* with more pointed apex. Upperside of forewings grey, darker at costa and outer margin, with brownish scales, devoid of markings except for an incomplete brownish circular spot at close of cell. Hindwings pale yellowish grey, darker in outer area, corresponding to the colouration of forewings. Underside grey, the inner areas somewhat paler, the veins with darker scales. From Dalmatia. Size is not indicated.

64a. Genus: **Esteparia** Fdz.

Related to both the preceding Genera, delicately built. ♂ antennae with widely separated long serrations, which are double and almost look like pectinations; they have long fascicles of cilia at extremities. Proboscis rudimentary; palpi long, extending over the frons with appressed scales and short terminal segment,

frons somewhat arched, but smooth. Thorax with very wide flat scales. The elongate sleek abdomen has a dense anal tuft. Only one, possibly 2 species:

- agenjoi*. **E. agenjoi** Fdz. (21 b). Forewings with grey-black irrorations on whitish ground, both dentate transverse lines with white edges on averted sides, the whitish subterminal line with a dark band-like inner edge. The large grey-black orbicular stigma is confluent with a similarly coloured claviform stigma. Reniform stigma is also a large dark spot, far removed from orbicular, the ground between them being particularly pale. A black lunular line before the long grey fringes. Hindwings white, silky and glossy. Only 1 ♂ is known from *gracilis*. Estépar (Province Burgos), Spain. The specimen was captured in September and is now before me. — **gracilis** Wgnr. (21 b) for which the author created the Genus *Amelina* (*Amelia praeocc.*) is also only known from a single ♂, which thanks to the author is now before me. Whether it is a genuine species, or as I am inclined to assume, a subspecies of *agenjoi*, must be left to future research, in any case the two specimens closely resemble one another; *gracilis* seems slightly wider in the wing, the margin more rounded and less oblique; the scaling somewhat softer and more mealy, not quite so coarsely strewn, the colouration a trifle more reddish, the markings, transverse lines and stigmata not so black, more of a blue-grey, the anterior transverse line not so oblique, the posterior line less sinuate and less boldly dentate, the white edges to the lines not so pronounced. Hindwings purer white. From 1 ♂ from Akshehir (Anatolia).

65. Genus: **Praestilbia** Stgr.

- confluens*. **P. armeniaca** Stgr. (Vol. 3 p. 205, pl. 48 c) — **confluens** Schwing. denotes an aberrative specimen in which the black spots are confluent forming one patch. From S. Dalmatia.

66. Genus: **Hypostilbia** Hmps.

- bang-haasi*. **H. bang-haasi** Wgnr. (= *melanochroa* B.-H. i. l.). Forewings dark brown, speckled and glossy, almost devoid of markings. Transverse lines as in *correpta* Pglr., only distinguishable as indistinct stripes, the outer one circumscribes the yellowish white spots that replace the reniform stigma, without actually touching them. Hindwings yellowish white with darker costa and apical area, veins and marginal line darker. Wing expanse: 31—34 mm. Djarkent.
- distracta*. **H. distracta** Ev. (Vol. 3, p. 216, pl. 45 i). PÜNGELER removed this species from the Genus *Radinogoes* and classified it here next to *megastigma*. Whether this is correct, must be left to a later decision after further investigations have been made.
- megastigma*. **H. megastigma** Pglr. (Vol. 3, p. 205, pl. 48 c). The illustration in Main Volume was not successful, a better one is given here (21 b).
- correpta*. **H. correpta** Pglr. (Vol. 3, p. 205, pl. 42 f) was also a bad copy of an unsatisfactory illustration by HAMPSON and quite unrecognisable. A fresh illustration is now given (21 b).

67. Genus: **Amphidrina** Stgr.

- syriaca*. **A. agrotina** Stgr. (Vol. 3, p. 206, pl. 48 c) — **syriaca** Osth. combines the characteristics of the type and of the form *jordana*, the large black reniform stigma is boldly developed and at the same time the three transverse lines that are characteristic of *jordana* are distinctly marked. Described from Marash. An illustration of the form is now given (21 b).
- nitida*. **A. nitida** Pglr. (21 b). Forewings wide, smooth and with glossy scales, brownish grey, both transverse lines only partially represented by a few dark patches, the posterior line is quite rudimentary, both cell stigmata with dark centres, orbicular round with slightly paler surround, reniform narrow; the obsolete subterminal line has a darker inner edge, the dark marginal line is faint and interrupted. The ashy grey hindwings are darker than forewings, devoid of markings with paler fringes. Palpi with thinner and longer terminal segment than in *agrotina*. From E. Turkestan (Chamil-Hami).

68. Genus: **Prodenia** Guen.

- litura*. **P. litura** F. (Vol. 3, p. 206, pl. 42 i). It is remarkable to record that PÜNGELER denominated the species *histrionica* F., although this name was only used by FABRICIUS 12 pages further on.

70. Genus: **Laphygma** Guen.

- albimacula*. **L. exigua** Hbn. (Vol. 3, p. 207, pl. 48 a). This small species is very variable. — **albimacula** Dhl. with whitish instead of reddish yellow stigmata, especially the orbicular stigma is a striking white circle, the other markings are generally only faint. — **variegata** Dhl. are darker, brightly marked and usually large specimens *decolorata*. with boldly marked transverse lines that have distinct paler edges. — **decolorata** Dhl. on the other hand are

almost devoid of markings and pale grey. The stigmata are indicated only by paler patches. All these forms are described from central Italy, but they also occur elsewhere.

71. Genus: **Athetis** Hbn.

This Genus does not yet seem to be clearly defined and WARREN made a number of wrong classifications and errors in the Main Volume. A few of the groups have been investigated in the meanwhile and their position is now clearer. NORDSTRÖM, FILIPJEV and others are working at the subject and it is to be anticipated that shortly a clear survey will be possible. Unfortunately this will not be in time to be incorporated in this work, although possibly something may be said in the Addenda. For the moment in general we will follow WARREN's sequence, so as to facilitate comparison with the Main Volume. FILIPJEV indicates a definite distinction between the Genera *Athetis* and *Proxenus* (with *Radinogoes* as sub-genus), in pointing out that the *Athetis* ♂♂ have a well developed uncus, whilst this is completely absent in *Proxenus*. After recognition of this fact certain re-classifications naturally become necessary.

A. conspicua Leech (Vol. 3, p. 208, pl. 48 a) — **grisescens** Draes. is a greyer shade, the stigmata are *grisescens*, not black, but grey-brown. Omi-hsien (Szechuan).

A. lapidea Wilem. Forewings pale grey-brown with rosy hue. Anterior transverse line blackish and *lapidea*, irregular, angulated inwards below the centre, the posterior line is dentate, blackish. Stigmata are absent, only a black discal spot is present and a row of black dots at outer margin. A dark central shade and a subterminal line are discernible as vestiges. Hindwings grey-brown. The ♀ has narrower wings and more distinct central shade and subterminal line. Wing expanse: 27 mm. Hondo, Yoshima, Kobe in August.

A. furvula Hbn. (= *lenta* Tr.) (Vol. 3, p. 208, pl. 42 g, h) having no uncus in genitalia, would appear *furvula* to belong to *Proxenus* and is now dealt with in that Genus. It should however be remarked here that it would appear better to re-introduce the name: — **lenta** Tr. for this species. English authors (TURNER) in particular *lenta*, are in favour of this, as *furvula* might be intended to denote a melanic form of *Acosmetica caliginosa* Hbn., the illustration and the description could only be taken to apply to this species.

A. alsines Brahm (Vol. 3, p. 208, pl. 42 h) — **levis** Stgr. according to BOURSIN is a separate species, *levis*, that has no connection with *alsines*. It does not occur in Asia Minor or in Spain, but only in Ferghana, Margelan.

A. pfeifferi Bours. reminds one most of *alsines*, but differs by the wider more yellowish forewings; *pfeifferi*, the markings appear softer. The central shade is broad and distinct and sharply bent inwards. Claviform stigma is absent, both upper stigmata large but not very prominent. The posterior transverse line is a simple fine black line (not consisting of arcs); the space anterior to the very distinct subterminal line is darkened, the marginal area itself is paler than the rest of the wing. Hindwings yellowish with dusky margin. Wing expanse: 32—34 mm. Lebanon.

A. straminea Zerny (21 c) is very close to *pfeifferi* Bours. Forewings are still wider and a more vivid *straminea*, straw-yellow. Transverse lines are blackish, the subbasal bent in a rightangle, the two central lines indicated by distinct black dots on veins. The most striking feature is the very distinct wide dark central shade, that proceeds close to the reniform stigma or even traverses same, forming an obtuse angle below the lower angle of cell and having fine dentations on the veins. Orbicular stigma often indistinct and small, without definite outline, only a dusky centre visible. Reniform stigma large, constricted in centre. Hindwings grey-brown with straw-yellow fringes. On underside disc of forewings heavily blackened. High Atlas (Tachdirt), Morocco.

A. alsinides Costni. is unknown to me and would seem a doubtful species. It is said to stand in relationship to *alsines* (Vol. 3, p. 208, pl. 42 h) as *superstes* does to *taraxaci*. It is very similar to *alsines*, but of much wider wing contour with much larger cell stigmata, both very bold and clearly marked, with black-brown centres, orbicular stigma round. Monte Gibbio, Sestola, in June—July. *alsinides*.

A. blanda Schiff. (Vol. 3, p. 208, pl. 42 h) — **arcuata** Vorbr. has a distinct arched row of black dots *arcuata*, in centre of hindwings. Switzerland. — **pallidior** Lenz are pale grey-brown specimens with diffuse markings. *pallidior*. — **fusca** Lenz are especially dark grey forms, that occur chiefly in ♀ sex. — **pseudambigua** Zerny are spanish *fusca*, specimens with darker purer grey forewings and paler hindwings that are only faintly duskier at margin. *pseudambigua*. Underside also is distinctly paler.

A. corticea Hmps. should be classified after *blanda*. Head and thorax are rufous, frons whitish, palpi *corticea*, black with whitish tip. Forewings rufous with darker interspersions, somewhat paler towards base. Both transverse lines blackish, undulate, the anterior line angulated inwards on 1, the posterior line incurved on discal fold. Orbicular stigma is a black dot, reniform stigma very indistinctly black. From the lower angle

of cell there is a somewhat undulate, blackish central line that proceeds to inner margin. Subterminal line indistinctly darker, behind it are black marginal dots. Hindwings glossy light brown with a delicate pale base line to fringes. Wing expanse: 28 mm. Central China (Hupeh).

confluens. *A. ambigua* Schiff. (Vol. 3, p. 209, pl. 42 i) — **confluens** Vorbr. shows the two cell stigmata confluent forming a longish irregular bar.

atlantis. **A. atlantis** Zerny (21 c) is close to *superstes* Tr., differing by the darker grey-brown forewings, with less prominent stigmata and transverse lines. Orbicular stigma is smaller, reniform stigma narrower. The pale subterminal line is irregularly dentate. Hindwings in both sexes are rather more heavily dusky, dark grey-brown, faintly transparent in disc. The antennae of ♂ have longer cilia. High Atlas (Tachdirt) in Morocco, in July, at altitudes of 2300—2700 m.

flava. **A. flava** Obth. (Vol. 3, p. 209, pl. 45 a). A species, that most certainly should not be classified next to *pulmonaris*, but is much more likely to be related to the *selini* group or near to *pertinax*. The illustration is fairly representative, only the marking of the fascia should be distincter, the colouration in fresh specimens is a brighter yellow-red, almost brick-red. — **approximans** Rothschild. (21 c) cannot in my opinion be separated specifically from *flava*. The author indicates, that apart from the smaller size, it differs by the wide deep grey margin, the markings and also because according to HAMPSON it belongs to a different section of the Genus. In a number of specimens I have received from ROTHSCHILD, I can find no anatomical differences, either in the antennae, build of the palpi, or in any other respect. In my opinion this is a stunted second generation, occurring in September—October, whilst the large *flava* occur from January to April. In some specimens the margin is slightly more grey, markings a little more diffuse, but that does not warrant a separate species.

bodenheimeri. **A. bodenheimeri** Amsel (21 c) appears outwardly to be midway between *flava* and *inumbata*, differs however by the ♂ antennae, that have strikingly large fascicles of cilia, in the ♀ they are pubescent. Forewings yellowish sandy grey with reddish tone, somewhat as in a pale *flava*, distinctly more yellowish than in the otherwise closely related *inumbata* Stgr. A reddish yellow dot on each side of the reniform stigma is very characteristic. The subterminal line is very distinct, both transverse lines are dull and indistinct, the dark scales at margin are faint. Hindwings thinly scaled, grey-white, veins and margin darker. Palestine in April, apparently not rare.

morosa. **A. morosa** Led. (Vol. 3, p. 209, pl. 45 a). The illustration was not good being much too fuscous. We are giving a fresh illustration of this rare species (21 e).

selini. **A. selini** Bsd. (Vol. 3, p. 210, pl. 45 a) cannot be recognised from the old illustration. We are now illustrating a typical specimen from central Germany (21 c). As synonym we must add: — *grisea* Aur. nec Ev. The species is very variable according to the locality. In the Main Volume many of these forms were dealt with as species. Of these we mention: — **selinoides** Bell. (Vol. 3, p. 210, pl. 45 b) a boldly marked dark form with especially prominent central band. It does not only occur in Corsica, but occurs typically for instance in the S. Tyrol at Atzwang. It is also found in Spain (Chiclana) etc. — **pallens** Schaw. also belongs here. It is the pale grey form with 4 black dentate transverse lines. — **puengeleri** f. n. (21 d) I denominate especially dark, boldly marked forms, that are without the striking central band of the preceding form, which the late PÜNGELER bred in large quantities from Bornio specimens. — **obscura** Nordström is very close to *puengeleri*, but much smaller, still darker with obscure marking. From Stockholm. — **jurassica** Rikkenb. (21 d) are nothing else but very pale whitish Swiss specimens, that cannot be specifically separated from *selini*. These specimens should not however be taken in conjunction with those from central Italy, as WARREN seemed to suggest. I designate the latter: — **abruzzensis** Drt (21 d), they are larger, darker and more coarsely scaled, more intensely peppered with black and they have not the smooth, flat scaling of *jurassica*. The markings are bolder, stigmata more distinct, the posterior transverse line is indicated by a double row of dots. Pescocostanzo. — **milleri** Schultz which in the Main Volume was mentioned as a synonym to *clavipalpis* Scop. is no doubt an aberrative pale form of *selini*. It seems to be an albinistic variety, the body is whitish, forewings only slightly darker, pale yellowish grey, hindwings quite white; it is paler than *jurassica*. From N. Germany.

hypostigma. **A. hypostigma** Bours. (21 d) is according to the genitalia, close to *selini* and reminds one of dark specimens of that species, differing however by somewhat narrower, darker and impure grey forewings, especially however by the prominent discoidal spot on the underside of all four wings. On upperside of forewings the central shade is boldly marked, claviform stigma is indicated by a dark dot, the brownish reniform stigma is distinct and prominent. Postmedian area is somewhat darkened outwardly and there are reddish brown cuneiform marks before the pale subterminal line. Hindwings impure grey with paler disc and bold central spot, those of ♀ still duskier. Lebanon.

A. mairei *Drt.* (21 d) which I had described as a *selini* form, is according to BOURSIN probably a *mairei*, genuine species. It is smaller, sleeker with narrower wings than *selini*. Forewings a paler brownish yellow with dusky dark grey margin, anterior to which is the subterminal line consisting of small yellow spots. Before these are bold brown cuneiform marks. Costa seems slightly paler with a faint bluish grey tone. Reniform stigma with grey centre; posterior to it in the centre, is an ochreous red spot and below on inner side a distinct white spot with 2 similar spots outwardly. Orbicular stigma a small grey dot. Transverse lines almost obsolete except for a few isolated grey-black scales, however the commencements on costa are definite, as densely black spots. There is also a fainter spot indicating the commencement of a central line and subbasally a bolder spot. Hindwings white in ♂ with faint grey marginal line, faintly suffused with grey in ♀. Egypt; also occurring in Cyrenaica according to TURATI.

A. flavirena *Guen.* (Vol. 3, p. 210, pl. 45 b). The illustration is fairly good, it must certainly be difficult to reproduce the Caradrinae so perfectly, that an unimpeachably true picture is given. In regard to the denomination of this species, matters do not yet appear to be clarified. PÜNGELER was of the opinion that — *la-ciniosa* *Donz.* was the oldest name, which had no connection with *clavipalpis*; according to him this is the paler, more brownish *noctivaga* form from Italy, Nice, Portugal, S. France, S. Tyrol (Klausen), S. Russia, Pontus, Palestine. — *noctivaga* *Bell.* (= *infusca* *Const.*) is the darker, more reddish black race from Andalusia, Corsica, Mauretania. — *subdita* *Warr.* is a paler and above all greyer form, irregularly marked and peppered; from the Valais. — *algeriensis* *Stert.* is still doubtful as to its classification with this species. It is more sleekly built, not so stumpy, with smoother and more glossy scaling, dark, dull leathery brown, all markings extinct also the 3 black costal dots; only the reniform stigma is indistinctly discernible in a few specimens. Hindwing impure grey-brown. Algeria (Hamman R'hira, Blidah, Guelt es Stel).

A. muricolor *Bours.* (21 d) is close to *flavirena*, which it resembles particularly owing to the yellowish reniform stigma. It is darker, the fascia and markings are obsolete, thus creating a curious smooth impression. The ♂ antennae are more strongly ciliate than in *flavirena* and *scotoptera*, which is also very similar. On underside the discal spot is almost always completely absent. The ♀ is considerably darker. Forewings dark brownish grey, transverse lines barely indicated central shade absent. Orbicular stigma is a minute dark dot, reniform stigma clearly apparent, darker, yellowish white outwardly, at lower end with 2 white dots at each side. On costa 3 or 4 black dots are visible. Subterminal line is indicated by faint paler brownish scales. Hindwings almost completely white, apex and margin slightly darker. N. Syria, Taurus (Marash, Amanus).

A. wulschlegeli *Pglr.* (Vol. 2, p. 210, pl. 45 b). The illustration in Main Volume is now replaced by a better one (21 e). This exceedingly rare species, does not appear to have been found anywhere else yet, except at Zermatt. It appears to be a very isolated species without any relationship to those preceding.

A. menetriesi *Kretschm.* (Vol. 3, p. 210, pl. 48 a) must now be held to be a synonym of the older denomination — *grisea* *Ev.* (Vol. 3, p. 211, pl. 45 d). FILIPJEV has taken pains to definitely clear up the complicated and difficult synonymy of this species. According to him — *montana* *Brem.* and *petraea* *Tengstr.* are synonymous with *grisea* *Ev.* PÜNGELER had surmised that EVERSMANN had confounded *grisea* and *cinerascens*, but according to the specimens in the Leningrad Museum, this is impossible. The illustration in the Main Volume is so bad, that it would be impossible to recognise the species and we are therefore now giving a good illustration (21 e). The species is widely distributed in central Asia, but in Europe, it is only found in the Urals. In *grisea* the brown cuneiform marks anterior to the subterminal line are always absent, whilst these are generally present in *cinerascens*. *grisea* is a much paler species. — ab. *fulvo-cincta* *Krul.* is described as being of the same size as *grisea* with similarly pale grey forewings, which however are vividly fuscous in the centre. Markings are only faint. Orbicular and reniform stigmata are small and barely indicated. I cannot form any conception, what this may be, but the author thinks "this is possibly a chance variation of *grisea*". Described from the province of Ufa. — *tunkuna* *f. n.* (22 e) is a remarkable form from the White mountains at Tunkinski (S. W. of Irkutsk). The entire costal half is pale sandy yellow to the grey band that forms the inner edge of the subterminal. The thorax is also of the same shade. Hindwings are slightly paler. Type in the coll. O. B.-HAAS.

A. melancholica *sp. n.* (*Pglr.* i. l.) (22 e) appears to me to be very like *grisea*. It is slightly narrower in the wing, a monotonous dark grey-brown but with superimposed grey-blue scales. Markings fainter than in *grisea*, the antemedian proceeds obliquely outwards, undulate, the posterior transverse line fairly heavily dentate. Orbicular stigma is a small dark grey round dot, reniform stigma fairly narrow and grey, with darker inner edge and with slight brown spots outwardly. Before the subterminal line, which consists of scarcely visible pale yellow-white dots, there is a row of dark grey dashes. Fringes pale grey with 2 darker dividing lines and with a hair fine yellow-white basal line. Hindwings grey-white, faintly darker at margin. In ♀ somewhat darker grey. From 2 ♂♂, 1 ♀ from the Tunkinsk-White mountains in the coll. O. B.-HAAS.

clavipalpis. **A. clavipalpis** Scop. (Vol. 3, p. 211, pl. 45 c). The illustration of this very common and widely distributed species was unrecognisable, we are therefore giving a fresh one here (21 e). The species is unusually variable. — **nigromaculata** Closs denotes an aberrative specimen with deep black centre to reniform stigma. — **quadripunctata** F. (= *nigrofasciata* Hoffm. & Klos) has a black-brown area between the subterminal line and fringes. — *laciniosa*, which as mentioned under *flavirena*, possibly belongs there, had best be completely deleted, as the name signifies nothing. — **leucoptera** Thnbg. was stated by LAMPA and then by NORDSTRÖM to be quite typical *clavipalpis* and should therefore be held to be synonymous. Therefore STAUDINGER's *leucoptera* with his diagnosis "obscurior, al. ant. fusco-griseis" should now be denominated: — **thunbergi** Nordstr., as the name given to it by TUTT: *superstes* Steph. cannot be utilised owing to the species *superstes* Tr. We are illustrating this darker grey-brown form (21 e). COSTANTINI mentions a *leucoptera* Thnbg. from N. Italy, maintaining that it is a genuine species, the larvae of which exclusively feed on *Scrophularia ramosissima*. It is not quite clear what is intended. — **mauretanica** f. n. (21 e) should be introduced for the gracefully built, always very pale brownish yellow specimens from N. Africa, which form a genuine race there; they are constant and can always be differentiated. — **minor** Rothsch. denotes especially small specimens of this form.

avicula. **A. avicula** Krul. is unknown to me. The author classifies same after *clavipalpis*. Forewings black-brown, almost black in central area with 3 fairly distinct grey transverse bands, a subbasal that is less pronounced, the ante and postmedian that are undulate, with dentate yellowish subterminal line. Orbicular stigma brownish and rather indistinct; reniform stigma yellowish outwardly with distinct white circumscription, 3 white dots below; claviform rusty brown; fringes black-brown with black dividing line. Hindwings pure white with dusky costa and yellowish marginal line. Length of forewings 14—15 mm. Near Uralsk in July.

perspicua. * **A. perspicua** Warr. (Vol. 3, p. 211, pl. 45 c) is a genuine species according to the investigations of FILIPJEV. It differs from *expansa* Alph. which otherwise it most resembles, by the paler, fainter markings, the less pronounced reniform stigma and narrower margin on hindwings. Besides occurring at Kisil-Arvat, it is also found in the Samarkand region (Kara Tjube) and near Semiretshje (Naryn).

persimilis. **A. persimilis** Rothsch. resembles a dark *clavipalpis*, but the brown cuneiform marks before the subterminal band are quite absent. The wing contour is shorter and wider. Head and thorax are dark grey-brown, abdomen somewhat paler. Forewings dark grey-brown, narrowly reddish yellow on costa. The 4 black costal spots are very distinct. From the first spot a dark oblique band extends to inner margin. The post-discal area is dusky black-brown with reddish yellow subterminal line. Hindwings white, veins and margin grey-brown. Wing expanse: 35 mm. Algeria (Souk Ahras, Sidi bel Abbès) in April and September.

expansa. **A. expansa** Alph. (Vol. 3, p. 213) is not a form of *pertinax*, but according to FILIPJEV certainly a genuine species. It is indeed very close to *perspicua*, but is darker, more sharply marked with distinct reniform stigma and more extensively dark at margin of hindwings. The anterior and posterior transverse lines are fairly distinct. It is widely distributed from Transcaspia (Askhabad), Syr Darja, Ferghana, Thian Shan to Mongolia (Uliassutai). Probably very close to *bodenheimeri* of this group, enumerated above (p. 176).

cinerascens. *A. grisea* Ev. (Vol. 3, p. 211, pl. 45 d) as already mentioned (see p. 177) is to be deleted. The species intended should now be denominated: — **cinerascens** Tengstr. with *menetriesi* Aur. nec Kretschm. as synonym. *rougemonti*. We are illustrating (21 e) the typical, small, poorly marked form from a specimen from Esthland. — **rougemonti** Spul. (Vol. 3, p. 210, pl. 45 a) is not a separate species, but the alpine form of *cinerascens*. It is larger, more vividly marked and coloured. The old illustration was not well printed and we are giving a fresh picture here (21 e). Meanwhile it has also been found in the Tyrol. — **apatetica** Pglr. was described as a form of *grisea* Ev., which PÜNGELER had confused. It should be classified here and is a darker form of large size with grey and not white hindwings. It very closely resembles the variable *selini*, but differs by entirely different genitalia whilst cilia of ♂ antennae are double as long. An eastern form from Sajan, Irkutsk, Baikal, Amur.

hispanica. **A. hispanica** Mab. (Vol. 3, p. 211, pl. 48 a). The illustration in Main Volume was poor, we are giving a better picture of this rare species (21 f). The species is close to *kadenii* and especially to *selini* and occurs in Algeria from April to August. The ♀ is smaller than the ♂, greyer, less ochreous, hindwings grey, in ♂ white. *hispanica* is less grey and more ochreous on upperside than *selini*. OBERTHÜR thinks that it is only an african form of *selini*.

ingrata. **A. ingrata** Stgr. (Vol. 3, p. 212, pl. 48 c). As far as I know the type form only emanates from Palestine and Beirut. The illustrations given by OBERTHÜR showing forms from Lambessa and Ain Draham certainly do not refer to *ingrata*. The illustration XDI in the Et. Comp. appears more likely to refer to *ambigua*. STAUDINGER's genuine *ingrata* is an almost pure ochreous yellow or pale yellow-grey type, much paler than the similar *selini* and *quadripunctata*, with poorer markings, the ♀♀ almost devoid of markings. Such lines as are present are faintly irrorated, the outer marginal area is widely blackish with distinct pale subterminal line therein. There are no brown cuneiform marks anteriorly. Hindwings white, slightly shaded outwardly.

The illustration in Main Volume gives no idea of the species, which is apparently always very rare and we are giving a good illustration now (21 f).

A. albina *Ev.* (Vol. 3, p. 212, pl. 45 d). Also this illustration leaves a lot to be desired and we are *albina*, illustrating both sexes afresh (21 f). COSTANTINI records the occurrence of *albina* at Campania, Naples (Vesuvius). — **parthenopea** *Costni.* according to him is a large form with pale markings. Whether it is actually *parthenopea*, remains to be definitely ascertained. — **congesta** *Led.* is probably synonymous with *albina*, as KEFERSTEIN, ALPHERAKY and recently also BOURSIN have pointed out. The illustrations that WARREN gave in the Main Volume are merely typical *albina* and they are not very good either. The somewhat greyer form from Asia Minor may continue to be denominated *congesta* (21 f).

A. tenera *A. B.-H.* (21 f). In PÜNGELER's opinion this belongs to *albina*, with which however I am *tenera*, not entirely in agreement. The size and the more elongate wing contour are against such a classification. Forewings yellowish grey, faintly mottled with blackish. The transverse lines begin as usual with a sharp black dash on costa and proceed about as in *rougemonti*. The dark orbicular stigma is small, the reniform with 4—5 white dots. Subterminal line is whitish with slight brownish yellow inner edge. Hindwings pure white with yellowish grey marginal line. Wing expanse: 31—34 mm. Yarkend (Mustagata).

A. terrea *Frr.* (Vol. 3, p. 212, pl. 45 d, e) — **zermattica** *Strd.* is said to be greyer on body and forewings *zermattica*, without any brownish or ochreous colouration. However the numerous specimens bred by PÜNGELER from ova obtained at Zermatt, are all dark grey-brown and can be compared to WARREN's description of — *pergrisea* from Uralsk, which was described 4 years earlier. We are illustrating a typical specimen from Zermatt (21 g), as the illustrations in Main Volume were not very successful. PÜNGELER himself has considered his specimens from Zermatt to be *ustirena* *Bsd.* which however also cannot be right.

A. fuscicornis *Rbr.* (Vol. 3, p. 212, pl. 45 e) — **rufostigmata** *Rothsch.* is a dull bluish grey form with *rufostigmata*, vivid orange-red reniform stigma. Orbicular stigma is a brown dot with yellowish red circumscription. From Algeria in June. — **sachalinensis** *Mats.* is very pale grey, costa narrowly yellowish, orbicular and reniform *sachalinensis*, stigmata small and indistinctly darker. The brownish transverse lines are interrupted and similarly obscure. Hindwings white, narrowly dusky at margin. S. Saghalin.

A. astigmata *Rothsch.* (= *divitefimbriata* *Obth.*) is possibly close to *fuscicornis*. Forewings on upper- *astigmata*, side silky ashen grey, devoid of markings, only the reniform stigma can perhaps be discerned. Costa with 2 black dots at the commencements of the transverse lines. Fringes very long. Hindwings impure whitish, brownish towards margin. Underside is very silkily glossy. Forewings grey with darker disc, hindwings whiter. Algeria (Aflou, Guelt es Stel) in September to November.

A. euxoides *Rothsch.* possibly belongs in close proximity to the preceding. A very large species, head *euxoides*, and thorax deep red-brown, abdomen yellow-grey. Forewings in basal two-thirds rich red-brown, speckled with grey, in outer third bright fuscous with dark black-brown marginal area, otherwise devoid of markings. Fringes grey-red. Hindwings semitransparent, grey-white, dusted with darker shades in outer third. Wing expanse: 42 mm. From 1 ♀ from Batna.

A. germainii *Dup.* (Vol. 3, p. 212, pl. 45 e). The illustration of this rare species is fairly good. Fresh *germainii*, specimens are still darker blackish, transverse lines not so pale. It closely resembles the following species, but is more heavily built and forewings show a distinct subterminal line composed of white spots. Also the outer edge of reniform stigma is more distinct and marked by white and yellow spots. On underside the arched line is absent on both pairs of wings.

A. scotoptera *Pglr.* (21 g) is a small species, that closely resembles the preceding. It is rather more *scotoptera*, weakly in build and the other differences are mentioned under *germainii*. The black-brown forewings are very indistinctly marked. The anterior transverse line is straight, oblique, consisting of small arcs that have a pale brownish inner edge. The posterior line is somewhat more curved and with sharper dentations. Orbicular stigma is absent, reniform with dark centre; outwardly of same a brownish spot and in some specimens with very faint white dots. In the rather darker marginal area, the subterminal line is indicated by very faint pale brownish spots. Hindwings white, narrowly grey before the margin. Veins and marginal area darker. On underside both wings have distinct arched lines. The larva is very like that of *quadripunctata*. Palestine in 2 generations. ROTHCHILD also records its occurrence in Algeria (Batna, Sidi bel Abbès).

A. jacobsi *Rothsch.* (21 g) is a further small dark species, that is closely related to the two preceding. *jacobsi*, Head yellow-white, thorax smoky grey, abdomen brownish grey. Forewings dark sooty grey to black, the basal three-fifths of costa reddish yellow-grey with the black dashes representing the commencement of transverse lines. The latter as well as the subterminal line are scarcely indicated. Margin yellowish red, only reniform stigma is indicated. Hindwings whitish, veins and outer third dusky brownish. In Algeria in September and October. Also captured by SCHWINGENSCHUSS in Andalusia. The larva, which is described by him,

generally resembles the *Athetis*-larvae, but owing to there being some dark subdorsal spots, it also looks like certain *Agrotis* larvae. Two small chalk white spots, replacing the dorsal line on segments 2 + 3, seem to be characteristic. The larvae hibernate in their cocoon in the larval state, changing to a pupa in the spring.

- halimi.* **A. halimi** Chrét. probably belongs close to *fuscicornis*. Forewings yellowish grey, peppered with black, the transverse lines dark ochreous yellow, with red and black interspersions towards the costa. The anterior line is oblique, the posterior line has a dark outer edge. The spotted subterminal line is indistinct. Both stigmata are very dark brown, the reniform has a small yellowish white spot outwardly. Fringes ochreous yellow, peppered with darker patches and black basal line. Hindwings yellowish white. The ♀ is much paler and less speckled with black excepting the basal area before the anterior transverse line. Wing expanse: 26—28 mm. Bred from larvae found in February under *Atriplex halimus* plants. The larvae are greenish or earthen grey, ventrally paler, dorsally darker and more reddish, with delicate whitish dorsal line, edged on each side by an indistinct brownish. The subdorsal is formed of brownish mottlings. Warts black and glossy. Biskra.
- pertinax.* **A. pertinax** Stgr. (Vol. 3, p. 212, pl. 48 b). The illustration in Main Volume is unsatisfactory and a better picture is given here (21 g). The group of forms of this and the following species is very difficult to define; *pertinax* is a relatively large, very pale yellowish grey species, in the type the marginal area is only slightly more darkly suffused with brownish, the transverse lines and stigmata are slightly darker, only the
- inumbata.* costal spots are somewhat bolder. — **A. inumbata** Stgr. denotes the more yellowish form with darker margin and characteristic dark band inwards of the subterminal line. We are giving an illustration (21 g). No doubt there is a close relationship with *bodenheimeri* enumerated above. In my opinion however this is a genuine
- clara.* species. — **A. clara** Schaw. was first described as a form of *bermeja*, with which we deal later on; now however the author wishes it classified as a *pertinax* form. Forewings are quite pale yellow-grey and only dark grey at the extreme outer margin. Both dentate transverse lines, the reniform stigma and costal spots are finely marked in grey, the bluish grey tone is quite absent. Hindwings silkily glossy white, only slightly grey at margin. Wing expanse: 33 mm.
- melanura.* **A. melanura** Alph. (21 g) is a genuine species according to FILIPJEV. The ground colour is not white, but only somewhat more whitish than that of other allied species. It differs by the bold dark shade at margin, which extends along both sides of the subterminal line, as in *inumbata* and is in fact very wide. It is separable from other related species by the genitalia in that the lower edge of the distal part of the valve is not pointed and the lower projection is much longer than the middle one. In *pertinax* the distal part of the valve tapers off towards the extremity, but it is not pointed as in the closely related *fergana* and the middle projection is just as long as the upper one. Besides occurring in Armenia, it is also found in Transcaucasia.
- bermeja.* **A. bermeja** Ribbe (= *iberica* Hmps., *occidentalis* Obth.) (21 h) is one of the finest *Caradrina* species in the group of *pertinax* forms. Forewings varyingly heavily admixed with leaden grey on yellowish grey ground, the leaden grey sometimes predominating. The marginal area is particularly dark with a very distinct pale subterminal line therein. The basal area and a very clear central shade are also dark, as are the orbicular and reniform stigmata. Hindwings are whitish grey, darker than in *pertinax*. This species has no relationship with *gilva*, despite the fact that *bermeja* was described as a form of same. Albarracin to Andalusia.
- vicina.* **A. vicina** Stgr. (Vol. 3, p. 213, pl. 45 f). A better illustration is given here (21 h) as the one in the Main Volume was not good. It is a somewhat smaller species that is more clearly marked. On the somewhat transparent hindwings a marginal line stands out very distinctly from the white surface of the wing and sometimes the margin itself is dusky. The species is distributed from Sarepta to Transcaspia and Samarkand.
- syriaca.* **A. syriaca** Stgr. (Vol. 3, p. 213) is also illustrated from a specimen bred by PÜNGELER (21 h). It has such a different appearance to *vicina*, that I must deem it to be a genuine species. The deep black reniform stigma is especially characteristic. It is mainly distributed over Palestine.
- fergana.* **A. fergana** Stgr. (Vol. 3, p. 213). FILIPJEV claims that this also is a genuine species. The ♂ genitalia differ from those of *pertinax* by having the distal part of the valve processes tapering off to a point, the central projection is considerably longer than the upper one. As compared with *vicina*, the markings of forewings are more definite, but blotchy, not forming lines. The darkening towards the margin is mainly inside of the subterminal line, in contrast to *melanura*. *fergana* is known to occur in Transcaspia, Samarkand and the Pamir.
- paupera.* **A. paupera** Chr. (Vol. 3, p. 213, pl. 45 f). ZERNY has ascertained that this is quite a different species as the one illustrated by HAMPSON and recapitulated by WARREN in the Main Volume. Further investigations seem essential. It is impossible for me to discover, what is the genuine *paupera*; ZERNY claims to have captured a specimen in the Lebanon that should be classified under this denomination.
- morpheus.* **A. morpheus** Hfngl. (Vol. 3, p. 213, pl. 45 f). This generally common species was badly illustrated and we are giving a better illustration of both sexes here (21 h). The species is very variable in colour, the
- fusca.* distinctness of the shade at outer margin, size etc. — **A. fusca** Costni. is small, of wide wing contour and very
- ochracea.* dark black-brown ground colour. — **A. ochracea** Lenz on the other hand is a very pale buff with diffuse mark-

ings. — **spalleki** Kitt is a form with black-brown dusky basal and marginal areas to forewings and deep black- *spalleki*. brown centres to orbicular and reniform stigmata, the subterminal line is distinct. From Olmütz. — **punctosa** *punctosa*. Krul. is a very small form, perhaps of a 2nd generation (?) with punctiform orbicular stigma.

A. funesta Stgr. (Vol. 3, p. 213, pl. 45 f). As the genitalia have no uncus, this is a genuine *Proxenus* and should be removed from here.

A. gluteosa Tr. (Vol. 3, p. 213, pl. 45 f, g) should also be classified under the *Proxenus*.

A. aspersa Rbr. (Vol. 3, p. 213, pl. 45 g). The illustration was poor, a better one is now given here *aspersa*. (21 h). — **alfacaria** Ribbe is an andalusian form, that is less grey and more brownish and only poorly marked. *alfacaria*. — **anceps** H.-S. It is not clear what was intended under this denomination. Perhaps it is only the slightly *anceps*. darker spanish form of *aspersa*, possibly however something entirely different. — **culoti** Trti. is synonymous *culoti*. with *aspersa*. It is only a slightly paler, softer grey form with little marking; it was first described from Sardinia, but has meanwhile also been found in Corsica.

A. predotae Schaw. is a remarkable, pure pale grey species, without the slightest admixture of brown- *predotae*. ish. It looks like a small faintly marked *Agr. margaritacea*. Forewings almost devoid of markings, the transverse lines only finely indicated and scarcely visible, merely 3 small black costal dashes indicate their position and these are definitely clear. The narrow reniform stigma is brownish at top, dark grey below. There is a row of minute yellow-white dots subterminally. Hindwings pure white, scarcely darker at margin, with white fringes. From 1 ♂ from Albarracin. There is a ♀ known that may belong hereto, it is however darker grey with darker hindwings. Obviously closely related to *culoti*.

A. maurella Stgr. (Vol. 3, p. 213, pl. 45 g) is a genuine *Athetis* and should not be classified under *maurella*. *Proxenus*, as FILIPJEV has ascertained.

A. kitti Rbl. (21 i) somewhat resembles the preceding species, but is a quite unicoloured brown-black *kitti*. with heavy coppery sheen, markings only indistinctly visible; fringes very long. Hindwings highly glossily silky and brownish grey. This species is very easily damaged, the scales appear lightly affixed. It is very local and is found in the Oetz valley and at Kl. Göll near Golling in the northern Chalk alps. — **griseomixta** Schultz *griseomixta*. has paler grey transverse bands, one in the inner part of central area with a distinct black orbicular stigma therein; the other band is next to the distal transverse line. Both transverse lines, especially the anterior one, are indicated by very definite black spots. — **vollmeri** Schultz on the other hand is uniformly pale grey with *vollmeri*. stigmata standing out clearly from the grey ground. The orbicular stigma is a round spot, the reniform consists of several dots. Behind the postmedian there is a darker band.

A. gilva Donz. (Vol. 3, p. 213, pl. 45 g). The illustration in Main Volume is much too dark, the species *gilva*. is considerably paler, more of a bluish grey with yellowish patches here and there. — **molisana** Dhl. (21 i) is *molisana*. a pure silvery grey, no trace of any brownish tone, the transverse markings and stigmata are a somewhat darker shade of grey, as also is the central shade; the subterminal line is generally clear and distinct. From the southern Abruzzi, exceedingly similar to the pale *Agr. decora* form *splendida* Trti. that occurs there.

A. umbratilis Drt. (21 i) is somewhat smaller, wings more pointed and with more oblique margin to *umbratilis*. forewings than *gilva*. Faintly yellowish grey, daintily bestrewn with grey. Basally and in marginal area the tone of grey is intensified. Orbicular stigma is absent, reniform stigma is a small grey spot. The anterior transverse line is very oblique, the posterior one is more heavily dentate than in *gilva* and nearer to the margin. Between them is a median shade. Subterminal line appears as a row of pale spots in the darker marginal area. On the margin is a row of fine black dots before the pale yellowish fringe base-line. Hindwings pure white with narrowly dusky margin. Korla.

A. fixseni Christ. (Vol. 3, p. 214, pl. 48 d). A better illustration is now given here (21 i), as that in the *fixseni*. Main Volume was unrecognisable.

A. keltana Amsel (21 i) is close to *fixseni*, but is much paler with obsolete markings and almost com- *keltana*. pletely pure white hindwings. The transverse lines, that are so distinct in *fixseni*, are here indistinct and interrupted. Orbicular and reniform stigmata are very obscure, marginal dots are faint or absent. The underside is grey-white and devoid of markings. It differs by the much more heavily ciliate ♂ antennae and the straightly porrect or only faintly up-curved palpi with longer terminal joint. Wing expanse: 21—25 mm. Palestine (Wadi el kelt near Jericho) in May. It closely resembles *Eulocastra tapina* Hmps.

A. casearia Stgr. (Vol. 3, p. 214) is now well illustrated here (21 i). — **bilineata** Culot has a black basal *casearia*. streak below the mediana, also a black bar between orbicular and reniform stigmata, which both merge in *bilineata*. this streak.

A. oberthüri Rothsch. is very like *casearia*, but somewhat larger and more boldly marked. Possibly *oberthüri*. this is an african race of *casearia*. Algeria (Oued Nğa and south Oued Mya) in April.

distigma.

A. distigma Chrét. is classified by its author next to *atriluna*, but according to ROTHSCILD it would be better placed near to *oberthüri*. Forewings pale ochreous yellow, bestrewn with ochreous red and black scales, especially around the subterminal line. The transverse lines are very fine brown double lines, inter-filled with the ground colour and commencing at a costal mark. Subterminal line consists of spots. Both stigmata are distinctly prominent, black with rusty brown scales. Hindwings white, dusted with grey subapically. Head ochreous yellow. Wing expanse: 26—27 mm. Algeria.

melanurina.

A. melanurina Stgr. (Vol. 3, p. 214, pl. 45 g). The wing contour of the illustration was not satisfactory, but we are not giving a fresh reproduction. The pretty little species is very like *Rhyacia melanura*, for which it might be mistaken. However it can be immediately distinguished from same by the anatomical differences. Hindwings are sometimes completely suffused with grey. It is said to also occur in the Taurus (Marash).

74. Genus: **Petilampa** Auriv.

arcuosa.

P. arcuosa Haw. (Vol. 3, p. 215, pl. 45 h). The name "*minima* Haw." is to be deleted here, as it refers

airac. to *Miana captiuncula* (vide what was said there). — **airac** Err. denotes a much more brightly and clearly marked reddish brown form and should therefore be removed from the synonyms. — ab. **luciola** Prohaska has coppery brown forewings with dark discal area. Described from Gratz.

raebeli.

P. palustris Hbn. (Vol. 3, p. 215, pl. 45 h) — **raebeli** Dhl. is a form from Gleiwitz in Silesia, that is very dark, unicoloured grey to brown-black with scarcely any markings. The ♀ is completely black and very

obscura.

glossy. — **obscura** Hoffm. & Klos is a transition to same, similarly very dark, but not quite so black. Styria.

lutescens.

— **lutescens** Farr. is paler, forewings ochreous yellowish grey. — **fusca** Farr. has forewings duskily blackish

fusca.

to the posterior transverse line. — **melanochroa** Stgr. It seems to me doubtful, whether this is a form of this

*melano-**chroa.*

species. It is certainly much darker and more clearly marked and we are illustrating a nice specimen (21 k).

75. Genus: **Dysmilichia** Speiser.

sutchanica.

D. gemella Leech (Vol. 3, p. 215, pl. 45 h) — **sutchanica** Filipj. is distinctly larger than type, it is much darker brown, the white markings being clearer and more extensive. Orbicular stigma has no central dot, whilst in the type it often has a distinct dark centre. Wing expanse: 31—32 mm. Sutshan.

76. Genus: **Proxenus** H.-Schäff.

This Genus should now be separated from *Athetis*. According to FILIPJEV's investigations the uncus is completely missing in the ♂ genitalia, whilst in the *Athetis* species it is well developed. As stated already under *Athetis*, the following species should now be classified under *Proxenus*: *lenta* Tr. (= *furcula* Hbn.), *funesta* Stgr., *glutcola* Tr.

bicolor.

P. bicolor Chrét. Forewings yellowish white in basal quarter with a black basal costal spot therein and a second one in the first quarter; the whole of the rest of the wing is bluish black with 5 apical costal dashes and a heavy irregular spot at close of cell. The spotted edge of the posterior transverse line and subterminal line with 5 marginal dots, are yellow white. The subterminal area is slightly peppered with yellowish white. Both transverse lines are delicately black. Hindwings white, brownish at apex with fine brown marginal line. Head grey intermixed with yellow and black, the thorax is ochreous yellowish, scapulae yellow-white, abdomen deep ochreous yellow. Wing expanse: 18 mm. Biskra in March. This small species is unknown to me and I am therefore unable to judge whether it should actually be placed here.

77. Genus: **Radinogotes** Btlr.

subargentea.

R. subargentea Car. (= *hospes* Graes., nec Err., *tristis lugens* Herz nec Stgr.) (21 k). Head and abdomen very pale grey, thorax grey-brown, darker in ♀. Wing contour more elongate than in the closely related *lepigone*. Forewings monotonous pale grey-brown, darker dusky brown in ♀. Reniform stigma is merely indicated by a faint white streak, the dentate transverse lines are very indistinct, the median area is occasionally faintly darker. Hindwings pale grey with slightly darker veins. Wing expanse: 26.5—31.5 mm. Amur territory, Corea.

v-parvum.

R. v-parvum Kozh. has similar wing contour to *lepigone* (Vol. 3, p. 216, pl. 45 i) but the apex is less rounded. Forewings pale grey-brown, both transverse lines very indistinct, paler than ground colour, consisting of small lunules, the posterior line proceeds straight from apex to the outer third of inner margin and it has a dark shade outwardly, there is then a narrow pale band that does not extend to apex. Margin and central area are somewhat darker and with a more rufous tinge. Basally there is a short pale longitudinal stripe below the median. Orbicular stigma is a small brilliantly white v-shaped mark. Reniform stigma is a white dot. Hindwings pale grey with darker veins and narrow dark margin. Wing expanse: 28 mm. From around Minussinsk, flying by day over steppes where *Artemisia* grows, in May.

cinerea.

R. cinerea Alph. (Vol. 3, p. 216, pl. 48 d) has a certain resemblance to *subargentea*, but the apex of forewings is less rounded off and central area more clearly outlined. A transverse band of small longitudinal

streaks beyond the outer transverse stripe is characteristic. Hindwings whitish. As a well developed uncus is present in the ♂, this species would be better classified under *Athetis*.

R. tristis Brem. (Vol. 3, p. 216, pl. 45 i). According to FILIPJEV this species is generally incorrectly diagnosed by most authors. In his opinion it should be placed with *lentina* Stgr. (Vol. 3, p. 208, pl. 42 h) and classified under *Proxenus*. The ♂ genitalia are identical, but those of the ♀ are different from *furvula* (= *lenta*). In *tristis* the expansion of the bursa is below the ductus, in *furvula* above same.

R. lugens Stgr. (= *hospes* Graes. nec Frr.) (Vol. 3, p. 216). According to FILIPJEV this species is entirely separate from *tristis* and belongs to the *lepigone* group. It closely resembles same, but is much darker.

78. Genus: **Haemassia** Hmps.

H. renalis Hbn. (Vol. 3, p. 216, pl. 45 i). The illustration was bad, we are giving a fresh better one *renalis*. here (21 k).

H. vassilininei A. B.-H. (21 k). This closely resembles the preceding species, but is a more brownish *vassilininei*. red, the median area is deeper brown, on both sides are lunular arched lines sharply outlined by white. Behind the area of the reniform stigma are 2 round white dots and also behind the anterior transverse line in the central cell, there is an isolated distinct white dot, which enables one to distinguish the species immediately from *renalis*. From the Caucasus (Aresh) and now also known to occur at Marash.

79. Genus: **Galgula** Guen.

G. partita Guen. (Vol. 3, p. 217). No illustration was given in Main Volume and we are now giving *partita*. one of both sexes here (21 k). — **baueri** Stgr. is to be withdrawn as a synonym to this sexually dimorphous *baueri*. small species. The name merely represented the usual ♂, which is pale greenish grey, yellow-grey or pale brownish grey in colouration, whilst the ♀ is always dark brown with almost black hindwings.

80. Genus: **Balsa** Wkr.

B. malana Fisch. (Bd. 3, p. 217, pl. 48 d). The almost unrecognisable illustration of this insignificant *malana*. species in Main Volume, is replaced here by a better one (21 k).

83. Genus: **Propsalta** Wkr.

P. atricupreoides Draes. is like *atricuprea* (Vol. 3, p. 219, pl. 45 l). The ♂ is somewhat smaller, ground *atricupreoides*. colour is grey-brown, both transverse lines are double, darker brown with paler interfilling, both dentate, the outer one with pale points on the veins. Subterminal line dentate, darker, sharply outlined against the paler marginal area. The thin dark marginal line is interrupted on the paler veins. Hindwings grey-brown, paler at base and with darker marginal line. Peiping.

P. topsenti Obth. is close to *griseata* Leech (Vol. 3, p. 220). Forewings brown, slightly silkily glossy. *topsenti*. The subbasal consists of 2 white spots with fine black circumscriptions. The oblique anterior transverse line is grey with black edge. The posterior line is similarly grey with fine black edge on either side. The large orbicular stigma is grey. The reniform stigma is obscure on a dark brown ground. Subterminal line has dark brown inner edge. Fringes grey with black checks. Hindwings pale brownish darker towards margin with faint discal lunule. Siao-loo.

P. scherdlini Obth. The generic classification of this species is still open to doubt; it was described *scherdlini*. as a *Perigea*. It is said to remind one of the Genus *Kerala* by the elongate wing shape and sleek abdomen. Forewings are silkily glossy brown, the anterior transverse line is undulate, not oblique with inner and outer brown edge. Immediately under the round orbicular stigma, is the large distinct claviform stigma. The large long reniform stigma is white with brown surround. The subterminal line is boldly undulate with pale outer edge. Marginal line finely black, fringes checked. Hindwings impure white with grey discal lunule and brownish margin. From Ta-tsien-lu.

84. Genus: **Scioptila** Warr.

S. eriopoda H.-Schüff. (Vol. 3, p. 220, pl. 47 a) — **eriopodoides** Strd. (= ab. 1 Hmps.). Forewings *eriopodoides*. dusted with grey, somewhat rosy behind end of cell, similarly beyond the posterior transverse line between vein 3 and inner margin. Asia Minor.

86. Genus: **Hadjina** Stgr.

H. radiata Leech (Vol. 3, p. 221) — **distinctior** Draes. The pale patches in markings of forewings are *distinctior*. heavily admixed with white, especially the orbicular and reniform stigmata; the dentations of the posterior

transverse line are pure white. Costal and marginal areas on underside are dusted with lilac-grey. Hindwings pale with heavy black discal spot, postmedian and subterminal bands. Szechuan.

eremita. **H. eremita** A. B.-H. (21 k). Forewings wide with pointed apex and oblique margin, uniformly reddish violet, partially dusted with brown. Both transverse lines are irregularly dentate, dark with paler edges on averted sides. Subterminal line, which forms 2 arcs, is faintly paler. Orbicular and reniform stigmata are slightly paler, the former small, the latter often diffuse. Marginal line is light and distinctly drawn. Extremities of fringes are darker than the ground colour. Hindwings grey-black with faint tinge of reddish. Fringes paler. — **decolorata** A. B.-H. is a darker ashen grey form. Wing expanse: 28—30 mm. From Garm (Peter the Great mountains), beginning to mid June. The species had best be placed after *chinensis* Willgr. (Vol. 3, p. 221, p. 47 b).

lutosa. **H. lutosa** Stgr. (Vol. 3, p. 221). This species was not illustrated in the Main Volume and we are now giving an illustration (21 l). — **taurus** Strd. denotes the greyer specimens from the Taurus that are suffused with fuscous and which were already mentioned by WARREN. TURNER appears to have erroneously placed this form to *Rhizedra lutosa* Hbn.

persicola. **H. viscosa** Frr. (Vol. 3, p. 221, pl. 47 b) — **persicola** Strd. is more ochreous or grey bestrewn with brownish, scarcely tinged with reddish. Both transverse lines of forewing are more distinct, the anterior one is angulated twice at submedian and near inner margin. Between the stigmata there is a darker patch. Persian Gulf.

86a. Genus: **Maraschia** Osth.

Proboscis boldly developed, palpi short and wide, straightly porrect with bushy hairs. Frons smooth, a short spine in centre in ♂. Antennae boldly ciliate in ♂, more weakly in ♀. Thorax with coarse hairs and scales, abdomen similarly. Forewings wide with truncate apex and uniformly curved margin. ♀ with projecting ovipositor. Differing from the closely related *Hadjina* by the shorter palpi and from the similar *Ipimorpha* which has a purely hairy thorax. Only 1 species:

grisescens. **M. grisescens** Osth. (21 l). Forewings grey-white, distally bestrewn with grey-black scales. Basal area very wide, edged outwardly by a simple reddish black line, that extends from the proximal third of costa in a number of arcs to centre of inner margin, forming 2 sharply pointed dentations in its lower part, that point towards the base. Central area somewhat dusted with reddish, edged outwardly by the simple, sinuate postmedian line, that has a pale outer edge. Orbicular stigma very large, distally yellowish with blackish surround. Reniform stigma darker grey with similar circumscription to orbicular. The space between the stigmata is darker rufous. Subterminal line pale, dentate with blackish spots anteriorly between the veins. Hindwings whitish with darkly dusted veins and blackish marginal line. The ♀ is much more indistinctly marked, hindwings dusted with grey. Wing expanse: ♂ 35, ♀ 38 mm. Taurus (Marash) in August—September.

88. Genus: **Catamecia** Stgr.

deceptrix. **C. deceptrix** Stgr. (Vol. 3, p. 222, pl. 47 c [not d!]). The illustration was a poor copy. A better one is given here (21 l).

jordana. **C. jordana** Stgr. (Vol. 3, p. 222) is now illustrated (21 l). — **mauretanica** Stgr. (= aeton *Culot* as synonym) is perhaps a genuine species. — **balestreii** D. Luc. (21 l) resembles *mauretanica* in appearance, forewings pale grey with distinctly white orbicular and reniform stigmata, also the subterminal area is whitish. Nefta, Kebili, from March to June and again in September—October.

contrita. **C. contrita** Chr. (Vol. 3, p. 222, pl. 47 c [not a!]). The illustration was poor, a better picture is now given here (21 l). According to PÜNGELER this species would better be classified in the Genus *Xylomoia*.

bryophiloides. **C. bryophiloides** Rothsch. I have not seen this species and cannot say whether same should be placed here. Head and thorax pale grey-brown, abdomen paler and more yellowish. Forewings ashen grey, the central area with darker slate grey outlines. Outer transverse line extends to apex, whilst the two lines approximate closely at inner margin. Subterminal area pale grey. Hindwings silvery grey-white, dusky at margin, greyer in ♀. Wing expanse: 27—29 mm. Algeria in August—September.

89. Genus: **Namangana** Stgr.

chimaera. **N. chimaera** Rothsch. This species differs considerably and its generic classification is open to doubt. The ♂ is monotonous brownish grey with silky gloss. Forewings slightly peppered with black, rather more heavily so in basal fifth. An oblique faint black line extends from vein 1 in the direction of apex to vein 5. Subterminally there is a row of small indistinct black spots between vein 4 and inner margin. Wing expanse: 31 mm. Morocco in July. This species should be placed at end of the Genus.

89a. Genus: **Evisa** Reisser

Proboscis well developed palpi extraordinarily short, slightly pendent, frons smooth; ♂ antennae with short fascicles of cilia. Thorax quadrate, coarsely haired, posteriorly with longitudinally divided crest. Abdomen narrow and weakly, a small tuft on first segment. Forewings elongated, with pointed apex. Only one species:

E. schawerdae Reisser (21 l). Thorax and forewings ashen grey, the latter with short black basal streak; *schawerdae*. both transverse lines black and approximately vertical to inner margin, the anterior line forms 3 angular arcs, the posterior one is finely dentate with yellowish grey outer edge. Between the two there are indications of brownish central shade. The small round orbicular stigma is whitish with grey centre and delicate black circumscription; the reniform stigma is large, pale yellowish grey, the lower half grey-black, with delicate black outline only on inner and lower edges; claviform stigma is small with very delicate black circumscription. Subterminal line diffuse, yellowish grey; on margin there is a very thick black marginal line. Fringes ashen grey, intersected by yellowish on veins. Hindwings pure white, dusted with black towards the margin, with deeper black veins and dense black marginal line. Wing expanse: 28—31 mm. Corsica (Evisa).

91. Genus: **Apamea** Tr.

The species of this Genus, so far as concerns the “*nictitans*” group, have had to be entirely re-classified, owing to the careful research of BURROWS, PIERCE, WILH. PETERSEN (†) and HEYDEMANN. We are therefore giving as many details as possible and based on the works just mentioned, the group has to be considerably enlarged. Instead of *nictitans* Bkh. and *paludis* Tutt, the following european species have to be introduced: 1. *oculea* L. (with f. *nictitans* Bkh.), 2. *fucosa* Frr. with *paludis* Tutt and *pallescent* Stgr., 3. *lucens* Frr. and 4. *crinanensis* Burrows & Pierce. Besides there are quite a number of new east-palaeartic species. Whoever is particularly interested in this group, should make a point of studying HEYDEMANN's treatise in regard to same, which was published in the Ent. Zeitschrift, Frankfurt 44 and 45.

A. oculea (= *nictitans* L. *mýopa* Fabr., ? *cinerago* Fabr., *obscura* Tutt) (Vol. 3, p. 224 as “*nictitans oculea* Bkh.”, pl. 46 b). In this and in the following forms and species I am enumerating the most easily recognisable characteristics as given by HEYDEMANN. The general shape is small, compact, with wide wings. Reniform stigma complete, large and white, not tapering off towards base. Ground colour brown, often with fuscous tone in centre, posterior to centre frequently with violet-brown ground and band-like shades and lines. Valves of ♂ with blunt rounded anal angle and wide lobulate harpe with 2 short pointed branches. ♀ with narrow band-like vaginal plate with flat excision and short wide points to ovipositor. — **nictitans** Bkh. (= *chrysographa nictitans* Hbn.) is the larger, more reddish to rusty brown form to central and eastern Europe, as well as Asia, whilst *oculea* represents the smaller north-westerly race. — **aurigera** Heydem. is an especially large southern form *aurigera*. with golden yellow basal and central areas. All 3 stigmata are golden yellow with delicate violet-brown circumscriptions. A golden yellow patch also at apex. Tessin. — **auricula** Don. has a golden-yellow complete reniform stigma and is a rare form that is almost always taken for *fucosa* Frr. and *paludis* Tutt. Its conspecific relationship to *oculea* has still to be checked. — **erythrostigma** Haw. (22 a) has a red-orange complete reniform stigma. Also very rare. — **obscura** Tutt are completely dark brown extreme specimens without rusty red tone and with grey-black hindwings. — **pallida** Tutt are pale reddish grey. Rare. — **rosea** Tutt has a more ochreous brown ground colour with paler hindwings with yellowish rose fringes. — **albicosta** Tutt is probably a pathological specimen with completely white costa to forewings. — **conjuncta** Spul. is also pathological. It has a very large orbicular stigma with yellowish surround which conjoins with the reniform stigma. *oculea* is rarer in northern Europe, more common in the south, extending however from Sweden and Finland to the Alps of N. Italy and eastwards to Persia and Issyk-kul. *erythrostigma*, *obscura*, *pallida*, *rosea*, *albicosta*, *conjuncta*.

A. fucosa Frr. (= *paludis* auct. nec Tutt) (22 a) is the most common form in central and south eastern *fucosa*. Europe. It is the large continental race, that has hitherto been designated as *paludis* Tutt and which often exceeds many *lucens* specimens in size. It is mentioned in the Main Volume on p. 224 as a form of *lucens* Frr. The name type form *fucosa* is pale leathery yellow with light orange reniform stigma, which may be narrower or fuller and larger and which exactly resembles that of *auricula* and *erythrostigma* of the preceding species. A very variable species. — **albomaculata** Heydem. (22 a) is just as pale as the name type but with large snow-white reniform stigma, which however inspite of two white dots on inner side, does not appear so full or so round as in *oculea*. — **intermedia** Heydem. is somewhat darker, leathery buff with yellow reniform stigma, whilst — **intermedia-albo(maculata)** has white reniform stigma. — **brunnea** Heydem. is a dull brown form; suffused with violet-grey in marginal area with complete and large yellow or narrowly white (**brunnea-albo(maculata)**) reniform stigma. — **rufa** Dadd are pale brown specimens devoid of grey or ochreous yellowish tones and with deep orange, respectively white (**rufa-albomaculata** Dadd) reniform stigmata. These brown specimens with orange stigmata are not differentiable outwardly from typical *lucens*. — **grisea** Heydem. and **grisea-albo(maculata)** Heydem. are still more inclined to impure grey with faint yellowish hue and the yellow or white, frequently very large, reniform stigma stands out prominently. — subsp. **pallescent** Stgr. exactly resembles *fucosa* in build, but differs by the somewhat paler yellowish, rather more impure grey suffused ground colour of forewings. *albomaculata*, *intermedia*, *intermedia-albo(maculata)*, *brunnea-albo(maculata)*, *rufa-albo(maculata)*, *grisea-albo(maculata)*, *pallescent*.

pallidescens-albo-(maculata)-paludis. Generally it has a yellow reniform stigma, but also occurs with white — **pallidescens-albo (maculata) Heydem.** This is the commonest and most widely distributed race in Asia, extending to the Amur. — subsp. **paludis Tutt** (Vol. 3, pl. 46 b) is barely larger than *nictitans*, but has narrower wings and is differently coloured with less extended apex to forewings. The name type, which we are again illustrating (22 a) is pale yellowish grey with narrow white reniform stigma, which towards the base is obliquely compressed by the ground colour, so that occasionally only a fine crescent with dusky grey nebular surround remains. Marginal area clearer, whitish yellow-grey, the lines delicately grey-brownish. — **paludis-flavo (maculata) Tutt** has a narrow pale to golden yellow reniform stigma, whilst the orbicular stigma, in contrast to *oculea* and *nictitans*, is scarcely discernible in the ground colour. — **grisea Tutt** is still more grey with impure olive hue in central area and more especially around the reniform stigma. — **grisea-flavo (maculata) Tutt** has a yellow-brown reniform stigma. — **intermedia flavo-(maculata) Tutt** and **intermedia-flavo (maculata) Tutt** are brighter buff to ochreous yellowish with narrow white or yellow stigmata and smaller than continental specimens. — **rufa Heydem.** and **rufa-flavomaculata Heydem.** are pale brownish specimens, often with ochreous tone around the stigmata, paler in marginal area and with almost rufous suffusion. — **brunnea Tutt** and **brunnea-flavo (maculata) Tutt** are chestnut-brown to dull brown in tone, often paler violet-grey in marginal area, as is shown in the illustration in Vol. 3, pl. 46; the narrow reniform stigma is white or red-orange. — **obscura Heydem.** is deep chocolate-brown without a reddish tone, with very narrow streak-like reniform stigma. Besides occurring in England, *paludis* is found on the north Frisian Islands. The only safe distinction for *fucosa* and its forms is ascertainable from the genitalia. The lower branch of the harpe is long, does not, however, extend beyond the anal angle of the cucullus. Corona only to halfway of outer margin, the row of spines from anal angle to centre of inner surface. *fucosa* with its forms is distributed over entire central Europe, eastwards to Kamschatka, the Amur and W. China, southwards to the French Riviera and the Caucasus. The species occurs from mid July to end of August, both in moist and dry districts.

anomala. There is nothing certain to be said in regard to the larva. As to — **anomala Krul.** which is said to be a *nictitans* form with grey or grey-brown forewings with ochreous yellow or orange-red reniform stigmata, the classification seems doubtful. I presume it is the *grisea* form of *paludis*, which in such a case would become synonymous. From Ufa.

lucens. **A. lucens Frr.** (Vol. 3, p. 224) is now illustrated from a specimen selected by HEYDEMANN (22 a). The species is the rarest of the European group and only occurs on highland heath moors. The degree of variation is less great than in the two preceding species. It cannot be differentiated outwardly from certain forms of *fucosa* Frr. and *crinanensis* Burr., but brown and reddish brown forms are the rule and such pale specimens as the typical *fucosa* or *pallidescens* do not seem to occur. The more common type of the species is red-brown, paler violet-grey in postmedian area, with wide dark brown interrupted median shade and fairly distinct lines and markings, with large almost complete orange-red reniform. When the latter is white, it is denominated — **lucens-albo (maculata) Tutt** (22 a). The stigma seems to be obliquely cut off towards the base and is narrow and suffused with the ground colour. — **brunnea n. coll.** and **brunnea-albo (maculata) n. coll.** denote brown to dark brown specimens without the red tone in central area and generally with quite dark grey hindwings and pale reddish ochreous fringes. — **intermedia Tutt** and — **intermedia-albo (maculata) Tutt** are the palest forms, impure, pale leathery buff, basal and marginal areas greyish white to pale nebular violet-grey, reniform stigma ochreous yellow, rarely white. — **grisea Tutt** (22 a) and **grisea-albo (maculata) Tutt** are grey-brown to grey-buff forms, which are also greyish white to pale violet-grey at apex and in postmedian area. This is a rare form. — **obscura Tutt** are melanic deep reddish black to violet-brown forms with blackish lines and almost completely grey-black hindwings and orange-red reniform stigmata. Generally speaking can only be differentiated by an examination of the genitalia. In the ♂ a more pointed anal angle of the valves with isolated brush of spines which does not extend to centre; corona spines to $\frac{3}{4}$ of outer margin; the lower branch of the harpe is curved and visibly extends beyond anal angle. In the ♀ the most definite characteristic is the ovipositor with long, sleek, only slightly rounded points. The species occurs from mid July to end of August on high lying moorlands. In England it only occurs in the north, in Scotland, Wales and Ireland. It spreads over the entire northern Europe to central Sweden and south Finland, southwards to S. Bavaria, eastwards to the Urals. It is surmised that *Molinia coerulea* is the food plant of the larva.

crinanensis. **A. crinanensis Burr. & Pierce** (22 b). This species cannot be differentiated by superficial appearances from red-brown *fucosa* and *lucens*, but only by the genitalia. A description is therefore superfluous. The nominal type is pale reddish brown with darker median area. Reniform and orbicular stigmata orange. — **pallida Burr.** and **pallida-flavo Burr.** are pale yellowish grey with white or yellow stigmata. — **rufescens-flavo Burr.** is dusky red with dark orange reniform stigma. — **rufescens-albo Burr.** identical but with white stigma. — **grisescens-flavo Burr.** is grey-red with yellow stigma. — **grisescens-albo Burr.** the same with white stigma. — **castanea-flavo Burr.** dark crimson-brown specimens with yellow stigma. — **castanea-albo Burr.** the same with white stigma. — **nigrescens-albo Burr.** blackish red-brown with white stigma; *crinanensis* is generally smaller than *lucens*: wing expanse: 29.5—35 mm. In the ♂ the valve has a cucullus completely covered with spines and no harpe, the valve itself is narrow. The ♀ has a deeply split vaginal plate. The species is only found in Ireland, Scotland and N. England, rarely in single specimens in Denmark, North Sleswig, Sweden and S. Finland; Esthland, the Baikal territory and Thian-shan. The larva is grey-white, occasionally reddish

brown or reddish with 2 reddish brown dorsal stripes, an interrupted subdorsal and wide lateral stripe. It has black warts and pale brown head. It lives in swampy territory with flowing water, in the shoots of *Iris pseudacorus*, probably also feeding on grass and swamp thistles.

A. asiatica Burr. A generally smaller species with uniformly coloured forewings without lighter or darker patches, often diffuse and with less distinct lines; *fucosa* and *oculea-nictitans* are sometimes so similar that it can only be differentiated by an examination of the genitalia. It is as large as *nictitans*, forewings reddish brown, orbicular and reniform stigmata somewhat paler, the latter almost complete, incomplete in centre towards base. — **asiatica-albo(maculata)** Heydem. has white reniform stigma. — **intermedia** Heydem. and **intermedia-albo(maculata)** Heydem. are the palest forms, leathery brown with distinct brown lines, the shade of colouration is the same as the corresponding forms of *fucosa* and *lucens*, but without the grey-violet patch in postmedian area. Reniform stigma ochreous, respectively white. — **castanea-flavo(maculata)** Heydem. is the darkest, rich brown form with reddish hue and brilliant orange-red reniform stigma. It can be distinctly differentiated by the very narrow, elongate valves, densely covered with spines on the cucullus, without harpes and the wide deeply excurved excision of the vaginal plate of the ♀. Wing expanse: 27—30.5 mm. Daghestan, Alexander Mountains; Issyk-kul; Ili territory; Thian-shan; Ussuri; China and Japan.

A. ochreola Stgr. (Vol. 3, p. 224, pl. 46 b). The illustration was unsatisfactory. It is larger than all other species. Forewings pale yellow-brown with very narrow white reniform stigma and whitish grey hindwings. The ♂ valve is fairly similar to that of *oculea*, the upper hook of the harpe is longer than the hook-shaped lower branch. Only known to occur in western central Asia.

A. distincta Warr. (Vol. 3, p. 224, pl. 46 c). The illustration seems to be good, but as only the one specimen is known, it is difficult to say anything definite, without having had an occasion to examine further material. HEYDEMANN finds a resemblance between the illustration and *ussuriensis* Pet. or even with *ochreola* with yellow reniform stigma.

A. burrowsi Chapman is a large species (wing expanse: 37—39 mm). Forewings deep rich brown with orange-red stigmata. As compared with *paludis* it differs in the two parallel lines posterior to stigmata, the space between the outer line and the margin is intersected by an angulated line. The hindwings are characteristic, they are almost whitish yellow, paler at base and with a dark diffuse postmedian line parallel to a band-like shading of the marginal area. — **burrowsi-albo** Heydem. is the form with chalky white reniform stigma, orbicular stigma orange. As usual, the reniform stigma is not complete, but it is narrowed towards the base, as if cut off by the ground colour. — **rufa** Heydem. denotes a paler ♀ with fuscous median area, very distinct marking of the lines, with clear dividing line and postmedian area dusted with violet. Hindwings scarcely paler at base. Valves of ♂ with long bold chitinous hooks, projecting distinctly beyond the dense hairs. Otherwise genitalia very like those of *lucens*. Japan, Amur and Ussuri territory.

A. ussuriensis Pet. This species reminds one strongly of *nictitans* owing to the reddish admixture of the ground colour of forewings and especially in the surrounds of the reniform stigma. In stature it is more like *paludis*, reniform stigma is white, yellow or orange, the brown lines are clearly prominent, the rectangular, interrupted narrow central shade below the reniform stigma is particularly distinct. In the ♂ the valve is wide, rounded and bent forward at dorsal rim with a short single branched harpe and a long, dentate clavus which is situate widely outward and upright. In the ♀ the tip of ovipositor is short and wide. Wing expanse: 32 mm. Ussuri territory and Japan (Yesso and Hondo).

A. malaisei Nordstr. superficially most closely resembles an *oculea* with an unusually large reniform stigma. Forewings brown to grey-brown. Orbicular stigma orange to dark yellow-red, reniform stigma white to creamy yellow or in — **erythrostigma** Nordstr. orange to dark yellow-red. The latter stigma is very large, roundish, in outer half it has a more or less zigzag shaped brown line. A distinct claviform stigma is absent. Hindwings grey-red to grey-brown, somewhat paler towards base, with reddish yellow fringes. In — **conjuncta** Nordstr. both stigmata are conjoined forming a wide cuneiform patch, that extends to the outer transverse line. The genitalia of this species have resemblances to those of *lucens*, *paludis* and *burrowsi*, being most like the latter. In the ♂ the upper edge of the valve is sharply angulated, the harpe is almost as long as in *burrowsi*, the upper branch extends to the bend of the valve, the lower one exceeds the outer edge of the cucullus. Wing expanse: 27—32 mm. So far only known to occur in Kamschatka.

93. Genus: **Hydroecia** Guen.

H. hucherardi Mab. (Vol. 3, p. 225, pl. 46 d as "hucheradi"). This species is conspecific with *osseola hucherardi*. (Vol. 3, p. 225, pl. 46 e). It differs by the somewhat more brownish grey, almost impure whitish ground colour and the less distinct markings. We are able to replace the unsatisfactory illustration by a good one (22 b) from a ♀ specimen, which has been kindly lent to me for the purpose by Mr BOURSIN. — **subrufa** Luc. denominates specimens with a deeper brown tone. From France.

- muriei* **H. murciegoi** *Fdz.* A quite recently described spanish species, which from its structure would appear to be conspecific with *hucherardi*. It is described as ochreous yellow, almost devoid of markings, only the lower half of reniform stigma being slightly darker grey. Extremities of fringes not darker, but lighter than ground colour. The ♀ is somewhat darker. From La Vid (Burgos).
- turatii*. *H. puengeleri* *Trti.* (Vol. 3, p. 225, p. 46 c). — **turatii** *Costni.* is a somewhat larger and paler form, which originates from Como and Milan. Later on the author claims it as a genuine species, which is said to also occur in the Province of Emilia (Mte. Gibbio).
- discolor*. *H. micacea* *Esp.* (Vol. 3, p. 226, pl. 46 d). — **discolor** *Krnl.* denotes specimens with grey or black-brown ground colour, frequently with greenish but not coppery sheen. From Wiatka. — **plumbosa** *Harrison* are still more blackish specimens with leaden gloss, described from England.
- leucographa*. **H. leucographa** *Hbn.* (Vol. 3, p. 226, pl. 46 e). The larva of this fine and large species, like related species, feeds up well on carrots; the imagines emerge from the pupae after 30—40 days. — **boreli** *Pier.* (22 e). According to an examination of the genitalia by LE CÈRE, these so closely resemble those of *leucographa*, that it must be held to be a subspecies. The larva feeds in *Peucedanum parisiense*, but can also be fed on carrots. When fully grown, it closely resembles that of *leucographa*, but appears darker and the warts seem coarser.
- franciscæ*. **H. franciscæ** *Trti.* (22 b) should be classified before *xanthenes*, as the first species of Section VII. Owing to the formation of the antennae, it is most closely related to that species, although superficially it more closely resembles *leucographa*. It is only half as large and in colouration it more closely resembles *Xanth. flavago*, the yellow is heavily interspersed with red-orange, the claviform stigma is completely orange. The marginal area is paler orange-yellow contrasting with the violet-brown of the narrow subterminal area. There is a pale yellow subapical patch. Hindwings as in *leucographa*. — **aurantiaca** *Trti.* is a form in which the violet-brown colouration is quite absent from the orange-yellow ground. On the other hand the cell, subterminal band and fringes are pale reddish brown. Sardinia (Aritzo).
- goossensi*. *H. xanthenes* *Germ.* (Vol. 3, p. 227, pl. 46 f). — **goossensi** *Dumont* has forewings of brick-reddish hue with metallic sheen, the stigmata are paler with delicate red circumscriptions. Hindwings very pale grey-red with almost whitish fringes. — **uniformis** *Dumont* has unicoloured reddish ochreous forewings with elliptical yellowish orbicular stigma having longish brown centre. Reniform stigma is absent. There is however a fine yellow marginal line. Hindwings paler, unicoloured. — **orientalis** *Obth.* is the east-algerian form, which is very pale, but less yellowish than the andalusian and sicilian specimens. It occurs in October at Lambessa and Batna. The larva of *xanthenes* is pale claret-red with orange-red head and black-brown scutellum with pale dividing line, the larva has black warts, thoracical and abdominal legs. Dorsal and subdorsal lines paler. It is polyphagous and is found in artichokes and Umbellifera, Compositae, Solanum and Crucifera roots.

95. Genus: **Pyrrhia** *Hbn.*

- rexilliger*. *P. umbra* *Hufn.* (Vol. 3, p. 227, pl. 46 g). — **rexilliger** *Chr.* (22 b) is to be removed from the synonyms. It forms together with — **exprimens** *Wkr.* (= *angulata* *Grote*, *aconiti* *Höltzermann*), which can claim rights of priority, a form with ochreous reddish forewings and deep brown suffused postmedian and marginal areas. Also the head and thorax are dark brown. *exprimens* was described from Canada and the U.S.A., *rexilliger* from Krasnojarsk in S. E. Siberia, but has also been found in Finland, Perm, Leningrad and Moscow.
- taurica*. *P. treitschkei* *Friv.* (Vol. 3, p. 228, pl. 46 h). — **taurica** *H.-S.* should be removed from the synonyms and deemed to be a race. It is predominantly yellow-white with greatly suppressed rose. We are illustrating a specimen of this nice form from the Lebanon (22 b).

97. Genus: **Meristis** *Hbn.*

- trigrammica*. **M. trigrammica** *Hufn.* (Vol. 3, p. 229, pl. 46 i). We have to add to the numerous forms mentioned in Main Volume: — **brunnea** *Lenz* a dark brown, not grey form. — **albescens** *Lenz* are pale whitish specimens, only in marginal areas of forewings and on hindwings are there darker shades. — **renata** *Lenz* has reniform stigma with dark surround and hence prominent. — **quadrigrammica** *Lenz* has the outer transverse line double. — **nigropunctata** *Krombach* has a black-dot in place of the reniform stigma. — **fasciata** *Krombach* has an unusually wide median band. — **convergens** *Wihan* has central and outer transverse lines converging at inner margin. — **basivoluta** *Wihan* has outer transverse line curved convexly outwardly, the ends are joined by a transverse streak. — **oculata** *Wihan* has the central transverse line transformed in the shape of a lentil, forming a patch 3 mm long by 1½ mm wide. The last 3 forms from Bohemia.

100. Genus: **Elydna** *Wkr.*

- coreana*. **E. coreana** *Mats.* (22 c) should be classified after *albisignata* *Obth.* (Vol. 3, p. 229, pl. 46 k) and closely resembles the species under *Dyrzela* *Wkr.* occurring in numbers in the Indo-australian territory and especially *tumidimacula* *Warr.* (Vol. 11, p. 176, pl. 20 a). *Dyrzela* is a synonym to *Elydna*, the species was classified by

BANG-HAAS as *Ipimorpha*, with which however it has nothing in common. Forewings brown with paler transverse line and stigmata, the orbicular is round, the longish reniform stigma extends to below the cell, both are pale yellowish with delicate surrounds. The posterior transverse line is incurved on vein 6, attached to it outwardly is a very striking deep velvety brown costal spot, which is concave outwardly and with fine pale yellowish edge. Hindwings paler grey-brown with dark discal spot. Corea (Shakoji). — **moltrechti** *O. B.-H.* *moltrechti*. is the Amur representative from Ussuri; it is darker brown, the costal spot is almost black, the transverse lines converge more closely towards inner margin, there is a black spot before the anal angle. — **hönei** *O. B.-H.* *hönei*. is much paler, so that transverse lines and stigmata are scarcely discernible, the costal spot is much wider, over the anal spot there are two additional spots. East China (Shanghai) captured in July.

102. Genus: **Calymnia** Hbn.

C. affinis L. (Vol. 3, p. 230, pl. 47 d). — **morleyi** *Porritt* has deep black-brown ground colour of forewings with more or less extinct costal spots. From England. — **nigrata** *Schaw.* is a similar very blackened form from Vienna. — **affineola** *Strd.* has grey-brown forewings, scarcely suffused with red, the postmedian area is more heavily covered with whitish. — **affinella** *Strd.* also has the whitish suffusion posterior to the outer transverse line rather more pronounced, but the ground colour is normal. — **subaffineola** *Strd.* resembles *affineola*, but is rather more heavily blackish.

C. unicolor *Stgr.* (Vol. 3, p. 230, pl. 47 e) was dealt with under *affinis*, but according to FILIPJEV'S researches, it is a genuine species with different genitalia. It differs from *affinis* by the absence of the white costal spots and the straight oblique anterior transverse line, which is not angulated below costa. Amur, Ussuri.

C. pyralina *Schiff.* (Vol. 3, p. 230, pl. 47 e). — **obscura** *Hoffm. & Klos* is dark blackish brown, the white transverse stripes obsolete. — **fuliginosa** *Du Bois* is also a dusky form. — **cuprea** *Horn.* is a brighter coppery red. — **arnoi** *Schaw.* a form with pale rose-brown forewings. — **dannehli** *Hartig* (= *roessleri* *Dhl.*) is a very large deep red form with closely approximated outer transverse lines and very wide, bold white costal spot. Probably these last forms are one and the same. — **saturate-brunnea** *Strd.* with "brownier forewings" is probably identical with *corusca* *Esp.* mentioned and illustrated in Main Volume.

C. trapezina L. (Vol. 3, p. 230, pl. 47 f). — Further colour variations have been denominated: — **rubella** *Krnl.* a fleshy red form, which is probably identical with the *carnea* *Warr.* mentioned in Main Volume and which has rights of priority. — **lutescens** *Wrli.* has glossy yellow, not blackish, hindwings with normal colouration of forewings.

C. camptostigma *Mén.* (Vol. 3, p. 231, pl. 47 g). — **camptostigmoides** *Strd.* has greyer forewings with scarcely noticeable darker pepperings. — **mediorufa** *Strd.* has a red median area on forewings. — **rufa** *Strd.* has a red suffusion over the entire forewing. All these forms are from East Asia.

C. trapezinula *Filipj.* Forewings brown and the anterior blackish transverse band extends less obliquely than in *trapezina*, terminating in centre of inner margin, so that discal spot of hindwings is immediately opposite its extremity, whilst in *trapezina* it is further towards the base. The posterior transverse line is nearer to the margin and is more definitely bent below the costa, there is a dark spot before it on the costa. Hindwings blackish, paler in basal and anal areas. Genitalia differ considerably. Wing expanse: 23 mm. Sutshan (Ussuri territory).

C. moderata *Stgr.* (Vol. 3, p. 231, pl. 47 h). The old illustration was a bad copy. A better picture is given here (22 c).

C. bifasciata *Stgr.* (Vol. 3, p. 231, pl. 47 i). According to PÜNGELER this would be better placed in the Genus *Pyrrhia* (Vol. 3, p. 227) after *umbra* *Hufn.* The illustration was unsatisfactory and much too dark. We are therefore illustrating afresh here (22 c).

C. sugitanii *Mats.* (22 c). Forewings brownish yellow, dusted with bluish grey. The subbasal line consists of two small black spots placed one below the other. The anterior transverse line is oblique, black-brown, terminating in centre of inner margin. A central line converges on the posterior transverse line, being closest on vein 1, the space between the two being interfilled with black-brown. The delicate undulate subterminal line ends on costa in a black-brown diffuse spot. Stigmata scarcely indicated. Hindwings pale grey with grey postmedian and subterminal lines and a discal spot. Wing expanse: 31 mm. Honsho, Japan.

C. eugeniae *Kard.* resembles *penicillata* *Graes.*, which according to PÜNGELER is identical with *cara* *Btlr.* (Vol. 3, p. 232, pl. 47 i); *eugeniae* is smaller, forewings rosy brown, anterior transverse line indistinct, the posterior line with less distinctly convex arc below costa and therein an indistinct pale rose spot, thence an acutely angulated shade extends to apex, which has no dark dots. In central area there is a faint darkish shade outwardly at upper end. Orbicular stigma is faint, reniform stigma almost circular. Fringes rosy grey-brown. Hindwings pale grey-brown with discal spot. Wing expanse: 24 mm. Sedanka, Vladivostok, in July.

106. Genus: **Dicycla** Guen.

It is now proposed to re-name this Genus — **Zenobia** Oken. on the plea that this is the oldest name.

rufecanago. *D. oo* L. (Vol. 3, p. 233, pl. 47 k). — **rufocanago** Dhl. has the ferruginous fascia in outer area suffused with olive-grey. This is the most variegated form, as well as the darkest, being placed between the grey *griseago* and *renago*. — **conflua** Holze has orbicular and reniform stigmata confluent. — **olivacea** Skala is an aberration that is completely suffused with olive-grey. From Moravia.

107. Genus: **Enargia** Hbn.

ulicis. **E. ulicis** Stgr. (Vol. 3, p. 233, pl. 47 k). This species also occurs in Mauretania. OBERTHÜR considered same conspecific with *regina* Stgr. and *algorica* Culot, but ROTHSCILD, as well as HAMPSON disagree. The decision is difficult, because in the 3 species, three separate groups of colour occur: — **griseo-olivacea** Culot yellowish ochreous grey, — **rufa** Culot salmon-pink to deep brick-red and — **brunnea** Culot brown to blackish brown. The margin of forewings is faintly dentate and of rosy hue. Transverse lines are paler than ground colour, stigmata more or less distinct, sometimes very bold, sometimes almost obsolete. Hindwings of ♂ silvery white, inclined to be rosy along the margin, in ♀ rather more brownish. — **pseudoregina** Fdz. (22 e) exceeds *griseo-olivacea* and is very pale yellowish, almost whitish with black basal spot, as in *regina*: orbicular stigma reduced to a dot, reniform stigma large with grey centre. Both transverse lines distinct, without dentations, the anterior line very oblique, so that at inner margin it almost converges with the posterior line. In place of subterminal line there are 2 rows of black dots, the inner one on the veins, the outer one between them. Costa and antennae are a brighter ochreous yellow. Hindwings rosy brownish. The ♀ is much darker. From Béjar (Salamanca) and Uclés in September. The author considers it possible that this is a genuine species.

jordani. **E. jordani** Rothsch. is most closely related to *borjomensis* Rom. (Vol. 3, p. 233, pl. 47 l) differing by the very bold and distinct orbicular and reniform stigmata. The ♀ antennae are so heavily serrate, that they almost seem to be pectinated, the ♀♀ of all other species have simple antennae. Head and thorax are cinnamon-red, abdomen grey-white, densely scaled with black. Forewings cinnamon-red, peppered with black, anterior transverse line scarcely visible, orbicular and reniform stigmata very large, dark brown; the posterior transverse line is distinct with undulate dentations. Fringes cinnamon-red and without the black tips of *ulicis* and allied species. Hindwings pale whitish with very small black discal spot and pale cinnamon-reddish undulate and angulated discal line. Wing expanse: 41 mm. From a single ♀ from Souk Ahras (Algeria), captured in April.

regina. **E. regina** Stgr. (Vol. 3, p. 233, pl. 48 a). The same three colour variations occur here as in *ulicis*. It differs from the latter by the more accentuated black rows of spots in place of the subterminal line, by darker stigmata and black basal dot. — **griseo-olivacea** Culot is more yellowish ochreous grey, — **rufa** Culot salmon-pink to deep brick-red and — **brunnea** Culot brown to blackish.

algorica. **E. algorica** Culot (= *deleta* Warr., *rufescentior* Rothsch.) (22 c). This species closely resembles the preceding, but the more or less distinct submergence of the stigmata and subterminal line is characteristic. Head and thorax yellowish cinnamon-red, abdomen paler. Forewings cinnamon-red, costa, inner margin and fringes inclined to orange; the oblique anterior transverse line is pale yellowish, edged with orange outwardly, whilst the posterior line has an inner orange edge. Stigmata small, grey with narrow pale yellow surrounds. Subterminal line quite indistinct. Hindwings white, rosy grey margin and fringes. The ♀ is inclined to brick-red on thorax, forewings olive-brown, hindwings grey-brown, paler at base, heavily suffused with rose, almost carmine at margin. This species, like the preceding, is very variable. It occurs in Algeria from September to November. Very deep red specimens are denominated — **ruberrima** Rothsch.

kansuensis. **E. kansuensis** sp. n. (22 e) is probably related to *abluta* and *imbuta* (Vol. 3, p. 234, p. 47 l, 49 a) and appears to vary considerably. In the ♂ before me, forewings are pale brownish yellow, thorax and anal tuft somewhat more ochraceous. Transverse lines delicate but distinct, brown, the anterior line bulging forwards in 3 arcs towards the margin in the cell, at submedian and below nervure 1. The posterior line slightly curved, almost parallel to margin. Orbicular stigma round, reniform stigma angulated and impressed outwardly, with a small grey spot at lower end. Immediately before same a faint central shade, subterminally a very faint shade is indicated; pale marginal striations before the fringes. Hindwings yellowish grey, dusted with black except at base and on costal margin. Faint marginal striations before the yellowish white fringes. The ♀ is much darker, brown, still deeper chocolate brown in the wide central area, so that the adjoining transverse lines are invisible. However as the ground colour on the averted sides is paler a contrast is created. Both stigmata with pale centres and with a dark central spot. Hindwings uniformly brownish grey. Thorax almost slate-grey, head and collar paler yellowish grey. From a well preserved pair from N. Kansu in the collection of BANG-HAAS.

trapezoides. **E. trapezoides** Stgr. (22 d) was omitted from Main Volume. It resembles a small *abluta rufula*, the outer margin is more oblique and less bulging. The anterior transverse line proceeds obliquely from the first fifth of costa almost to centre of inner margin, slightly bent towards the base on vein 1. Stigmata are larger, there

is a faint central shade between them. The posterior transverse line is straighter, less sinuate. Hindwings pale brownish grey, darker in ♀. From W. Turkestan, Alexander Mountains to E. Siberia.

E. paleacea Esp. (Vol. 3, p. 233, pl. 47 l). — *postulkae* Skala is a unicoloured pale yellow form without any markings. Described from Moravia. *postulkae*.

108. Genus: **Phragmatiphila** Hmps.

P. insularis Trti. (22 e) closely resembles *nexa* (Vol. 3, p. 234, pl. 49 a) but the forewings are reddish yellow-grey with paler antemarginal; the orbicular stigma is a minute white dot, the white reniform stigma is not angulated outwards in upper half and is not proximally extended on mediana, but is simply a narrow crescent. The veins of inner margin are slightly dusted with black. Hindwings unicoloured brownish with scarcely indicated antemarginal and reddish fringes. Underside yellowish with pale antemarginal, which is much wider than in *nexa*. Sardinia (Aritzo) in October. *insularis*.

109. Genus: **Rhizedra** Warr.

Rh. lutosa Hbn. (Vol. 3, p. 235, pl. 49 b). — *vectis* Curt. should be removed from the synonyms, as it is not identical with the type. The forewings are pale ochreous with darker longitudinal streaks between the paler veins, the mediana is reddish ochre, also the inner marginal nervure which is dusted with black; there is a discal dot and a postmedian row of dots. The whitish hindwings are faintly dusted with ochreous. — *strigata* Rbl. has dentate black postmedian lines on fore and hindwings, forewings also have an ante- median. — *lechneri* Rbl. has forewings densely dusted with grey-brown, the veins, a submedian streak and a cell streak remain pale. — *rufovenosa* Schille is smaller than type, forewings ochraceous grey with paler veins. The inner marginal area is suffused with darker grey, with a typical row of dots. Hindwings dark grey with reddish veins and fringes. From Galicia. *strigata*. *lechneri*. *rufovenosa*.

109a. Genus: **Sedina** Urbahn

Thanks to the researches of URBAHN, the semi-extinct "*Simyra*" *büttneri* has been re-discovered and its correct classification recognised. In consequence this species is placed next to *Rhizedra*. The new Genus *Sedina* is characterized by a short proboscis, projecting, somewhat porrect palpi with long hairs and elongate pointed terminal segment. Frons smooth. Antennae serrate and ciliate in ♂, simple and ciliate in ♀. Thorax with appressed hairs. Abdomen long and without tufts. Foretibiae with inner large pointed spur. Forewings with pointed apex. Type: *S. büttneri* Her.

S. büttneri Her. (Vol. 3, p. 12, pl. 2 d). The illustration was poor, a better illustration is given here (22 d) from a nice specimen that was kindly lent me for the purpose by Mr URBAHN. — *moltrechti* O. B.-H. (Suppl. Vol. 3, p. 6, pl. 1 b) should also be classified here. It is the more frail, paler east asiatic race and is not a separate species. *büttneri* has hitherto only been found at Stettin, Misdroy, Potsdam and Paris. Specimens denominated *büttneri* from Taganrog, Rostow and Kursk have not yet been determined as to their specific relationship and may possibly be a new species. The life history has also been discovered by URBAHN. The ova hibernate, the larva hatches at the end of April, feeding on *Carex acutiformis* and *Glyceria*. In nature it feeds head downwards in the central shoot of the plant, about 3" below the surface and the central leaves of the plant become discoloured and yellow. The larva is sleek and typical *Leucania* type, pale yellowish with wide reddish brown subdorsal line and stigmatal marks. It pupates end of June to beginning of July with the head upwards in the hollow of the stem of a plant of the preceding season. The imagines emerge end of August to October. *büttneri*. *moltrechti*.

110. Genus: **Arenostola** Hmps.

A. procera Stgr. (Vol. 3, p. 235, pl. 49 d). The illustration was unrecognisable. A better picture is now given (22 d). *procera*.

A. phragmitidis Hbn. (Vol. 3, p. 234, pl. 49 d). — *maculata* Warn. has richly yellow orbicular and reniform stigmata. Slesvig-Holstein. *maculata*.

A. rufula Warr. has approximately the same form and size as *phragmitidis* and is about of the same colouration as the ab. *rufescens* Tutt, but it has a white costa and fringes of the same colour as the ground; hindwings pale ochreous yellowish in basal area, whilst marginal area is more reddish ochraceous. Fringes paler. Head and thorax pale brownish red like the forewings. Syr Darja, Transcaspia. *rufula*.

A. unicolor Warr. is somewhat larger and has wider wings than *phragmitidis*, it is as pale in colouring as the ab. *pallida* Tutt, but the fringes in *unicolor* are not grey-brown, but of the same shade as the forewings. The hindwings, including the fringes, are pale ochreous yellow and not grey with paler veins. Similarly from Transcaspia, but probably also occurring in Tura, Issyk-kul and Amdo. Both the last two species are doubtful in regard to their claim to specific rank and should perhaps meanwhile be better classified as subspecies to *phragmitidis*. *unicolor*.

- sohn-retheli*. **A. sohn-retheli** *Pglr.* (Vol. 3, p. 235, pl. 49 e). This species has meanwhile also been discovered in the Romagna and similarly in Greece (Parnassius). In the latter country it has been hitherto mistaken for *mor-signata risii*, which thus is not found in Greece as stated in Main Volume and this should be corrected. — **signata** *S.-R.* (22 d) are rather darker specimens with distinctly pale veins, that stand out prominently from the olive-brownish ground. Also a whitish reniform stigma is visible and 2 indistinct whitish transverse lines, which often are noticeable in consequence of darker outlines.
- improba*. **A. improba** *Stgr.* (22 d) was omitted from Main Volume. I was able to inspect the type. Head and thorax white with faint yellowish hue, abdomen yellow-brown. Forewings with whitish costa and also narrowly at inner margin, brownish yellow, veins delicately darker and between the veins there are longitudinal grey-brownish streaks. Hindwings strikingly dark black-grey with whitish fringes. Thian-shan, East Turkestan.
- taurica*. **A. taurica** *Stgr.* (22 d). Also this species was omitted from Main Volume. The type has been submitted to me. It is a narrow winged small species with pointed wings. Forewings ivory white to pinky grey sparsely peppered with dark grey, especially along the veins and occasionally with 2 dark dots at close of central cell. Hindwings impure whitish to grey. Abdomen fairly long. From Marash and Akbès, probably occurring in 2 generations.
- junci*. **A. fluxa** *Hbn.* (Vol. 3, p. 236, pl. 49 f). The names enumerated under the synonyms partially refer to special forms, thus — **junci** *Bsd.* is very pale straw-yellow with dusky mediana and obsolete whitish reniform stigma, hindwings blackish; W. Germany. — **nigropicta** *Huene* has 2 black transverse lines, which converge at inner margin, often becoming confluent and forming a patch. The posterior line is dentate. Described from Esthland. — **expressata** *Krul.* is not a synonym of *fluxa*, but an extreme form of *nigropicta* with especially bold dentate black transverse lines. Wiatka, Kasan. — **saturata** *Stgr.* is also not a synonym, but a form with much richer red colouration, according to TURNER = *hellmanni* *H.-S.* which in the Main Volume is enumerated among the synonyms of *pygmina* *Haw.* — **fasciata** *Krul.* is a *nigropicta* or *expressata* with a dusky median area between the transverse lines.
- fulva*. **A. pygmina** *Haw.* (Vol. 3, p. 236, pl. 49 f). — **fulva** *Hbn.* is not, as stated in Main Volume: fulvous *neurica*. rufous, but a rich rufous. — **neurica** *Steph.* is not an especially large pale ochreous yellow form, but deep brown. *concolor*. — **concolor** *Tutt* is an almost whitish form, — **ochracea-suffusa** *Tutt* is ochreous yellow with grey shading along the veins. — **punicea** *Tutt* is pale rose-grey and not "paler and greyer less fulvous". — **punicea-suffusa** *Tutt* is similar, but with grey shaded veins. — **transversa** *Stgr.* is dark grey-red or red-brown with 2 very pronounced *suffusa*. black transverse lines. From Esthland. — **africana** *Obth.* Forewings are more reddish ochre with faintly visible *transversa*. central shade. It is very distinct by the invariable white hindwings, in contrast to the brown hindwings of *africana*. type. Algeria.
- sounkeana*. **A. sounkeana** *Mats.* is somewhat like *pygmina*, but easily distinguishable by the 2 cell spots. Forewings dark grey, with a darker shade at base; one black dot in place of the orbicular and two for the reniform stigma, the latter has a somewhat whitish outer edge. On margin there is a row of black dots. Hindwings pale grey with silky gloss, veins and margin somewhat darker. Wing expanse: 23 mm. Hokkaido, Japan.
- extrema*. **A. extrema** *Hbn.* (Vol. 3, p. 236, pl. 49 g). — **radiata** *Wgnr.* shows longitudinal streaks created by the *radiata*. appression of black scales along the veins. In regard to the german localities, it should be remarked that the species is found in western Pomerania, around Stettin and then again in central and southern Baden and around Munich. Besides it is found in Switzerland and near Paris. The larva resembles that of *hellmanni*, but has a black head and it feeds in the stems of *Calamagrostis epigeios*.
- impura*. **A. morrisii** *Dale* (Vol. 3, p. 236, pl. 49 g). — **impura** *Schwing.* (22 d) is dusted with grey-black, forming *obscura*. patches between the veins of disc. In outer area these incline to become longitudinal. — **obscura** *Schwing.* is a uniformly dusky grey-black. The species is also found around Vienna. Further PIETSCH captured a quite typical ♀ on 5th June 1912 at Wehlau in E. Prussia. He has made me a present of the specimen which is new to that district.
- dulcis*. **A. dulcis** *Obth.* (22 f) described as *Argyrospila*, but probably better classified here. Forewings on upper-side silkily glossy yellowish white, often with faintly reddish hue. Veins delicately marked with brownish black and they seem to protrude slightly. Hindwings white. Underside dull brownish black, inner margin and margin yellowish white, veins grey-black. The ♀ is smaller than the ♂ and has narrower wings and relatively very long abdomen. Géryville in Algeria, in August and September.
- suzukii*. **A. suzukii** *Mats.* (22 f). Forewings pale brownish yellow, sparsely peppered with black-brown, there is a black-brown spot both subbasally and in centre of cell. Both transverse lines quite extinct, undulate, angulated on vein 1. On margin there are some dark dots. Hindwings somewhat paler with dark discal spot. Wing expanse: 26 mm. Honsho, Kyoto.

110a. Genus: **Rosenia** *Schaw.*

Proboscis well developed; palpi covered with woolly hairs and pointed, straightly projecting terminal segment, extending beyond the clypeus. Antennae of ♂ with long bi-pectinations, those of ♀ with short serrations. Thorax with dense hairs, crested on top. Abdomen extending beyond the inner angle of hindwings.

Hind tibiae with 2 pairs of bold spurs, with many bristles adhering to anterior of tibiae. With this diagnosis the classification of the single species seems rather doubtful. SCHAWERDA places it with a ? next to the *Simyra*, BANG-HAAS described the species as a *Tapinostola*. We are placing it temporarily here. It is possible that it is an aberrative *Agrotid*.

R. distincta A. B.-H. (22 f). Forewings pale ochraceous, partially olive-greenish, the anterior two-thirds of costa paler, reddish. A wide white longitudinal streak extends from base over the mediana almost to margin, it is edged above and below by dark olive-grey. There is a second white longitudinal streak subapically above vein 6. The veins are delicately but duskily outlined. Hindwings impure whitish, somewhat darker at base and inner margin; there is a dusky longitudinal streak below the mediana towards the margin. Thorax yellowish white. Ussuri. *distincta*.

111. Genus: **Archanara** Wkr.

A. geminipuncta Haw. (Vol. 3, p. 236, pl. 49 g) — **fusca** Tutt is not identical with *nigricans* Stgr., the latter is completely sooty black-brown; *fusca* similarly but with 2 white dots in reniform stigma. — **nigropunctata** Kromb. orbicular and reniform stigmata are denoted by heavy black dots. — **jaeschkei** Warn. has double transverse lines clearly indicated on forewings, these outline the central area towards the base and outer margin. This form has been observed around Hamburg and Kiel. — **orientalis** Wgnr. is a very interesting subspecies from Anatolia (Akshehir). It is remarkably large with wide wings and dark colouration. It is a very dark chestnut, almost black-brown, somewhat like the form *nigricans*. Another specimen is inclined to grey-brown with blackened disc in forewings and dark marginal veins. The white reniform dot more or less distinct. Length of forewings: 18 mm. *fusca*, *nigropunctata*, *jaeschkei*, *orientalis*.

A. dissoluta Tr. (Vol. 3, p. 237, pl. 49 h) is incorrectly illustrated in the Main Volume, *dissoluta* is a dark form, *arundineta* the paler; — **hessii** corresponds to the darkest *dissoluta* forms and is not a simple synonym, but much darker, duskily blackish with white reniform stigma. — **flava** Turner is a yellow form, without any reddish tone, all the darker markings suppressed. From Yorkshire. — **rosea** Turner is suffused with rose. — **sulzeri** Vorbr. described as a genuine species, but it probably is an aberrative specimen belonging here. Forewings reddish blue-grey, orbicular stigma barely indicated, reniform stigma outlined by whitish, the longitudinal streak is absent. There is a posterior transverse line consisting of arcs and beyond same a sinuate row of black dots. On the margin there are black cuneiform triangles, then a pale marginal line and grey-brown fringes. Hindwings grey with dark cell spot. Head and collar grey. From Tarasp. It is sometimes difficult to distinguish *dissoluta* and *neurica*. *dissoluta* has dark central spots on underside of hindwings, which never appear in *neurica*. Further the collar is always of the same shade as the thorax, whilst in *neurica* it is always white posteriorly. Besides *dissoluta* is generally more compactly built and larger on an average. *dissoluta*, *hessii*, *flava*, *rosea*, *sulzeri*.

A. neurica Hbn. (Vol. 3, p. 237, pl. 49 h). — **rufescens** Edelst. is a reddish form with darker hindwings. — **fusca** Edelst. is a black-brown form, hindwings being also darker than type. — **nigra** Turner is a completely black form, analogous to the darkest *hessii*, but always recognisable by the white collar. In regard to the differences as compared to *dissoluta*, see above. *rufescens*, *fusca*, *nigra*.

A. affinis Rothsch. is very close to *neurica*, but is darker and more blackish. It can at once be differentiated by 4 black dots at the 4 angles of reniform stigma and black dots below the orbicular stigma. From Sidi near Abbès (Algeria) in June. *affinis*.

A. sparganii Esp. (Vol. 3, p. 237, pl. 49 i). A number of new forms have been denominated: — **unimaculata** Dumont. Forewings dull ochreous, with faint rosy hue, the black marginal dots faint, only 4 black dots in place of the lower part of reniform stigma, the veins are not reddish. Hindwings paler in both thirds of inner margin. Oise. — **impunctata** Turner. The black dots along the hindmargin of forewings are absent. Hungary. — **clara** Turner is an extraordinarily pale form with almost white hindwings, only very faintly suffused with yellowish. Forewings only slightly more yellowish, without any reddish or brownish tone. The rows of black dots are present. N. E. Kent. — **lutea** Wightm. is pale sulphur-yellow on forewings, hindwings paler yellow, peppered with blackish at base. Essex. — **rosea** Wightm. Forewings pale orange-rose with pale rose veins. Hindwings delicate ochreous whitish. — **rufa** Wightm. has deep coppery red forewings. Hindwings pale reddish with dusky grey streaks on veins. — **nigrostriata** Wightm. has the same ground colour as type: a black streak extends below mediana, from base to outer row of dots, with further streaks below costa and above inner margin. Hindwings ochreous grey with black streaks along veins. Sussex. — **rosearadiata** Wightm. has longitudinal streaks like the previous form but coloured a deep bluish red and widely expanded, so that the pale ground colour only appears as 2 strips above and below the mediana. Hindwings with rosy tinge, otherwise as previous form. Sussex. — **deleta** Wightm. resembles the previous form, but the streak along the mediana is absent. — **strigosa** Stgr. was omitted from Main Volume. Forewings dull straw yellow with very dark streak along the mediana which terminates just before the outer margin in a separated isolated dark spot. Sometimes also the subcostalis is covered by a dusky streak as far as end of cell. In centre of cell there are 3 black dots, the one behind the other. Amur. *unimaculata*, *impunctata*, *clara*, *lutea*, *rosea*, *rufa*, *nigrostriata*, *rosearadiata*, *deleta*, *strigosa*.

sparganoides. **A. sparganoides** O. B.-H. Body and forewings yellow-grey, the latter with separated marginal dots. In place of the posterior transverse line there is a row of delicate black dots on veins. Two blackish longitudinal streaks extend through the disc. Hindwings blackish as far as an arched black line beyond centre. Wing expanse: 27 mm. From 1 ♂ from S. Ussuri (Sutshansk).

brunneo-ochraceus. **A. algae** Esp. (Vol. 3, p. 238, pl. 49 k). — **brunneo-ochraceus** Strd. has pale forewings dusted with pale ochreous brownish.

112. Genus: **Coenobia** Steph.

rufa. **C. rufa** Haw. (Vol. 3, p. 238). We are illustrating the usual northern german type (22 f); *rufa* is the rufous form. — **despecta** Tr. should be removed from the synonyms, it is a more brownish form with paler hindwings. — **lineola** Steph. is reddish grey with a brown streak on mediana, the illustration was not satisfactory. — **fusca** Bankes (= *rubicundipennis* Strd.) has dark brownish black forewings with very faint reddish suffusion and dark grey hindwings slightly paler at base. From England.

stigmatica. **C. stigmatica** Ev. (Vol. 3, p. 238, pl. 48 e). The illustration was unrecognisable. A fresh one is given here (22 f).

113. Genus: **Nonagria** Tr.

maritima. **N. maritima** Tausch. (Vol. 3, p. 238, pl. 48 e). — **anella** Steph. is not synonymous with *maritima* (Type), but with *bipunctata* Haw. — **combinata** Edelst. is a combination of the *bipunctata* form with *nigristriata*. — *spormanni*. **spormanni** Heydem. fairly closely resembles *combinata* but has a much more silvery grey, only faintly brownish ground colour whilst *combinata* has a more reddish hue. — **conjuncta** Rangn. is an interesting form, in which the 2 dots of *bipunctata* are widely conjoined by black at lower edge. From Berlin. — **grisea** Wgnr. is a much paler and purer grey subspecies from Anatolia (Akshehir).

obscura. **N. obscura** Wilem. is dark grey-brown on head and thorax, abdomen greyer. Forewings grey-brown with faint bluish grey suffusion, the veins distinctly prominent, especially the mediana with two black dots between 2 and 4. Hindwings grey-brown. Wing expanse: 30 mm. Hondo (Yoshino) in July.

114. Genus: **Oria** Hbn.

musculosa. **O. musculosa** Hbn. (Vol. 3, p. 239, pl. 48 f). The illustration was poor, nothing is visible of the paler markings. A better illustration is now given here (22 f). — **olivina** Alph. has olive-yellowish longitudinal streaks on deep olive-grey ground colour. — **dirini** Alph. has a bright rusty brown ground with ivory-white longitudinal streaks. Both described from S. E. Russia (Crimea).

lajonquierei. **O. myodea** Rmbr. (Vol. 3, p. 239, pl. 48 f). — **lajonquierei** O. B.-H. (22 g) is of paler colouration on upper-side of thorax and forewings, brownish yellow, the veins are prominently dark. The submedian fold crosses a blackish streak, above which the ground colour appears strikingly paler. Hindwings white. Described from S. E. France, Gironde; May and June.

115. Genus: **Argyrospila** H.-S.

striata. **A. striata** Stgr. (Vol. 3, p. 248, pl. 51 a) is mistaken by WARREN and many other authors to be the same as *Timora albida* Hmps., which although similar, is widely different. The illustration was poor and seems to more closely resemble the said *albida*. A fresh illustration is given here (22 f). Thorax white, abdomen brownish yellow. Forewings yellowish olive-grey, costa, inner margin and extremities of veins white. There is a long wide white band through the cell that is bifurcated at end of cell and extends on veins 3, 4 and 6, 7 to the margin. The submedian fold is also widely white. Hindwings white, faintly dusky towards margin. See also p. 197.

succinea. **A. succinea** Esp. (Vol. 3, p. 239, pl. 48 f). The illustration was too dark and not representative. A better illustration is now given (22 g). The species has meanwhile been found to occur in Anatolia (Akshehir).

116. Genus: **Sesamia** Guen.

calamistis. **S. calamistis** Hmps. (Vol. 15, p. 97, pl. 10 i). This species, which is dealt with in the African Volume, occurring in S. Africa, is reported by ROTHSCILD to occur in Algeria in September. It differs from *vutieria* Stoll. (Vol. 3, p. 240, pl. 48 f) to which it is closely related, having similarly constructed antennae, by the pure ochreous yellow ground colour. This is devoid of any reddish tone and is much more heavily dusted with black. Besides there is a black dot on the submedian fold before the centre and a further black dot occurs with the discal spot on the discal fold posterior to close of cell. Wing expanse: 36 mm.

rufescens. **S. cretica** Led. (Vol. 3, p. 240, pl. 48 g). — **rufescens** Schaw. is a form that is suffused with reddish brown; from Herzegowina.

S. uniformis *Dudg.* (Vol. 11, p. 189, pl. 21 b). This species which is known from the East Indies as being *uniformis*, injurious to sugar cane, has been recorded as occurring at Luxor (Egypt).

120. Genus: **Calamia** *Hbn.*

C. virens *L.* (Vol. 3, p. 240, pl. 48 g). — **flava** *Wohlfahrt* has yellow forewings, pale brown at outer margin, *flava*, fringes white, the white reniform stigma has a pale brown outer edge. Costa paler, basal area of forewings with faint greenish tone. Abdomen and hindwings impure pale yellowish green, darker at margin. From one perfect ♂ from Merseburg. — **decolorata** *Car.* similarly described from a perfect ♀, has whitish forewings with faint *decolorata*, greenish hue in disc; costa, outer margin and apical area with rosy sheen. Dobrudja (Tekirghiol). — **rubro-** *rubrocili-*
ciliata *Schaw.* has bright brown fringes with white extremities. There is a fine yellow line between the brown *ala*, fringes and the green surface of the wings. The white reniform stigma has a brown circumscription. Hindwings impure grey, denser towards margin. Fringes of hindwings white. Albarracin. — **bimaculata** *Krul.* *bimaculata*, from Ufa and Wiatka has a white orbicular stigma besides the similar reniform stigma.

C. pyxina *A. B.-H.* Forewings pale yellow, costa and veins somewhat more whitish, otherwise devoid *pyxina*, of markings. Rarely a posterior transverse line is indicated by whitish dots on veins, similarly there are sometimes traces of a whitish reniform stigma. Hindwings white. The ♂ antennae with short cilia. The generic classification is at present open to doubt. Wing expanse: 36—40 mm. Uralsk (Emba river).

122 a. Genus: **Callyna** *Guen.*

This Genus, which has many representatives in the indo-australian and african territories, is now also found to be represented in Japan. Proboscis developed, the erect palpi extend to vertex; frons smooth, ♂ antennae ciliate; the thorax scaled and without a tuft. The narrow forewings with almost parallel margins. Neuration normal. Differing from *Chasminodes* by the scaled thorax and absence of tufts on abdomen.

Type: *C. siderea* *Guen.* from Indo-Australia.

C. monoleuca *Wkr.* (Vol. 11, p. 196, pl. 21 g). This dark species with its yellowish white apical spot, occurs in Japan (Karapin) in the form — **japonibia** *Strd.* In it the stigmata are only barely indicated, whilst *japonibia*, the pale grey oblique antemedian and similar postmedian are distinct. Captured in August.

123. Genus: **Euterpia** *Guen.*

E. laudeti *Bsd.* (Vol. 3, p. 242, pl. 48 i). — **umbrata** *V. Schultz* has a wide dusky marginal band on hind- *umbrata*, wings. From Albarracin.

124. Genus: **Synthymia** *Hbn.*

S. fixa *F.* (Vol. 3, p. 242, pl. 48 i). — **diffusa** *Strd.* (= ab. 1 *Hmps.*). The hindwing has a diffuse central *diffusa*, band and a similar postmedian. — *suffusa* *Strd.* is a synonym to *griseofusa* *Warr.* with completely dark brown hindwings. In the form — **prieta** *Ribbe* the upperside of forewings is completely suffused with dark brown, *prieta*, only the pale narrow outermarginal band and the pale stigma are retained. — **nigra** *Ribbe* combines the *nigra*, dark forewings of the previous form with the completely black-brown hindwings of *griseofusa*. — **australis** *Obth.* *australis*, (22 g) is an especially pale and large form from Algeria, Sicily and Morocco.

124 a. Genus: **Caradjia** *Zerny.*

Proboscis fully developed. Palpi straightly porrect, about half the length of frons, with trilobed chitinous projection and corneous plate thereunder. Antennae of ♀ shortly ciliate. Thorax and abdomen with smooth scales, no dorsal tufts, the latter with short ovipositor that is curved downwards. Tibiae with short hairs, fore tibiae with short pointed spine at extremity on outer side. Forewings narrow with almost rectangular apex and regularly sinuate smooth margin. Areola present.

Differs from *Synthymia* *Hbn.*, with which it has the formation of frons and folds in common, by the narrow wings, the presence of the spines on fore tibiae, the absence of the coarse hairs on thorax and at base of abdomen, the ovipositor, as well as the much more extended anastomosis of the subcosta of hindwings.

C. sericea *Zerny.* Forewings on upperside glossily pale straw-yellow, almost devoid of markings. The *sericea*, underside is yellow-grey, costal margin widely straw-yellow towards apex. Fringes on underside grey in the basal half. Hindwings glossily yellowish white, transparent, with grey dusting, especially along the veins and

towards the costa. The underside is yellowish white without any dusky dusting. Vertex, basal limbs, palpi and back of thorax pure white; frons, 2nd and 3rd segments of palpi, legs and abdomen pale straw-yellow, fore tibiae grey on inner sides, fore and middle tarsi ringed with grey. Length of forewings 15 mm. From the Inn Shan, Chingan mountains, eastern Mongolia, at an altitude of 2000 m. In July.

124b. Genus: **Crosia** Dupont.

Proboscis weak; palpi short, somewhat oblique, the central segment scaled on underside, with short terminal segment. Frons with flat quadrangular corneous plate with small central point. Antennae of ♂ finely ciliate. Thorax scaled, abdomen without crests. Fore tibiae without spines. Apex of forewings pointed. On hindwings 3 + 4 and 6 + 7 are stalked. Only one species:

hachem. **C. hachem** Dupont. Forewings very pale brownish on upperside. Transverse lines paler than ground colour, the posterior one is finely dentate, between them there is a straight central shade. Subterminal line is similarly pale, regular, it interrupts the brown veins. The large orbicular stigma and the narrow reniform stigma are both paler than the ground colour, the former with black circumscription, elliptical at top. Between the two stigmata the ground is black, as in *c-nigrum*. Hindwings grey-whitish. Wing expanse: 21 mm. Only 1 ♂ from Oran, captured in October.

125. Genus: **Megalodes** Guen.

prolixa. **M. prolixa** Drt. (22 g) resembles *eximia* Frr. (Vol. 3, p. 242, pl. 48 i) but the ground colour is a pale olive-grey, not green. Basal area on the submedian fold and the postmedian area suffused with red. The white transverse lines are double as wide as in *eximia*, the central area enclosed by them is narrower and somewhat darker than the rest of the wing, especially in the innermarginal half. The stigmata are only faintly outlined by white. Veins in marginal area pale whitish. Hindwings light grey with 2 whitish transverse lines. Palestine in April and May.

M. gloriosa Stgr. (Vol. 3, p. 242, pl. 48 i), *liturata* Chr. and *kashmirensis* Hmps. (Vol. 3, p. 243, pl. 48 k) should be removed and classified as *Cucullianae*. In this Supplementary Volume they are dealt with on p. 128.

127a. Genus: **Protomeceras** Rbl.

The only species was described by OBERTHÜR as "*Cimelia*", but according to REBEL's researches, it is a quadrifinid Noctuid closely related to *Megalodes*. It was omitted from Main Volume. The ♂ antennae are pectinate. Frons with a bold naked chitinous spine in centre, with 2 shorter spines laterally. Eyes small, palpi almost as long as diameter of eyes. Thorax scaled with coarse hairs, abdomen sleek, long and smoothly scaled. Forewings wide with boldly bulging margin. Neuration as in *Megalodes*, but veins 8 + 9 on forewings with shorter stalk. Only one species:

mimicaria. **P. mimicaria** Obth. (23 d). Forewings ochreous to earthy brown, with veins finely marked in white, rather more boldly before the postmedian. The double transverse lines are interfilled with white, extending from black double spots on costa. Stigmata finely outlined by white, the orbicular with a longish appendix at lower end, which extends beyond the claviform stigma. Posterior to the whitish subterminal line there is a white and black dentate marginal line. Fringes boldly checked, black and white. Hindwings brown with double darker discal streak, an undulate, curved pale postmedian and widely darkened marginal area, therein a dentate paler subterminal line and faintly checked fringes. Algeria (Sebdou, Lambessa) in September. The ova are brown when laid turning to leaden grey. The young larva has a stunted front pair of abdominal legs. Head is black, body dark grey with wide white dorsal and orange lateral spots, underside is black-brown. They fed on grass, but only survived two moults.

127b. Genus: **Mesaegle** Dumont.

Proboscis quite rudimentary, palpi very short and appressed to frons. The frons with a bold process in the shape of a laterally compressed cylinder, which is deeply hollowed out on top. Antennae also in ♀ weakly lamellate and ciliate. Thorax covered with hairs, mesothorax with wide flat scales below the hairs, no tufts on thorax or abdomen. Fore tibiae with a long chitinous spine anteriorly, outwardly. Forewings with somewhat concave costa, apex rounded, margin oblique, about as long as the inner margin. Only 1 species:

gouzzakouli. **M. gouzzakouli** Dumont (22 g). Forewings pale brownish olive, the margins white, a wide submedian longitudinal streak, a large trilobed spot at end of cell, an oblique apical streak and a wide, outwardly concave submarginal band between veins 1—7, all white. The veins and a black marginal line are somewhat darker brown than the ground. Fringes white. Hindwings of ♀ densely peppered with brown on white ground, with a white spot on margin between veins 2—5. Fringes white beyond the dark brown marginal line. Algeria (El Golea) in April. We are able to illustrate a ♀ cotype *).

*) According to subsequent information, BOURSIN states that this Genus belongs to the *Noctuinae* (*Quadrifinae*).

129. Genus: **Aegle** Hbn.

A. ottoi Schaw. (22 g) is like *vespertalis*. Forewings yellowish white with 3 impure brown transverse *ottoi*. bands, the antemedian is narrow and like a line, almost forming a rectangle in cell, the third bending inwards just anterior to apex without sharp outline, all three almost parallel. Fringes brown at base, somewhat checked outwardly. Hindwings rather more whitish with a brownish submarginal band. Wing expanse: 21 mm. Mosul (Mesopotamia).

A. vespertalis Hbn. (Vol. 3, p. 243, pl. 48 k). — **limbobrunnea** Strd. has an indistinct antemedian on *limbobrunnea*. forewings from costa to vein 1, the median shade and the postmedian lines are bolder, a brown shade in marginal area from below apex to anal angle. Hindwings completely suffused with brown. More widely distributed in western Asia, but also occurring occasionally in southern Europe. — **petroffi** Andres & Seitz differs *petroffi*. from type by having only the central of the three oblique stripes and this is quite straight. Egypt.

A. rebeli Schaw. Forewings on upperside somewhat darker ochreous than *koeckeritziana*, smaller, a *rebeli*. brown oblique band in outer half extending from before the apex to centre of inner margin. Paler yellow in disc and subterminally below apex. Hindwings unicoloured black-brown, as also is the abdomen of ♂, whilst in ♀ it is ochreous yellow. Wing expanse: 21 mm. Mosul (Mesopotamia).

Subfamily: **Melicleptriinae**.2. Genus: **Chloridea** Westw.

C. dipsacea L. (Vol. 3, p. 245, pl. 50 i) also occurs in Algeria and Morocco in May and June, according to OBERTHÜR and ROTHSCILD. — **tristis** Strd. is a dark greenish grey form with increased black on hindwings. *tristis*. From Illyria. — **salmantina** Fdz. resembles *canariensis* and *adaucta*. Forewings with somewhat reddish hue, *salmantina*. smaller than *adaucta*, the hindwings not yellowish, the central spot isolated, not conjoined with marginal band. Described from Salamanca.

C. ononis Schiff. (Vol. 3, p. 245, pl. 50 k). — **lugubris** Klem. has black hindwings with white central *lugubris*. spot, all other white markings are almost extinct. Brody. — **olivacea** Vorbr. is a deep green form with olive *olivacea*. coloured bands. Described from Switzerland.

C. peltigera Schiff. (Vol. 3, p. 246, pl. 50 k). — **condolens** Schaw. are dark specimens from southern *condolens*. localities with dark brown to black-brown markings. The marginal band of hindwings is deeper black and wider, the pale patch suppressed. — **clarissima** Trti. is a form with very pale sulphur-yellow forewings, on *clarissima*. which only the apical patch and reniform stigma are apparent, the subterminal band is only indistinctly indicated, all other markings quite extinct. Hindwings similarly pale yellowish with grey marginal band and distinct discal lunule. Cyrenaica (Bengasi).

C. guidellii Costni. is probably only a form of the variable *obsoleta* F. (Vol. 3, p. 246, pl. 50 k). It is *guidellii*. smaller, wing expanse: 27 mm; yellow-grey bestrewn with black-brown; both stigmata large, quadrate with dark centres, the reniform stigma touches the posterior transverse line at its lower end. Central shade very dense, closer to base at inner margin. Subterminal line similar to that of *nubigera*, but bulging more. Hindwings with wider marginal band, no marginal dots, the fringes divided by a rusty brown basal line. From 1 ♂ from Modena.

C. maritima Grasl. (Vol. 3, p. 246) was not illustrated in Main Volume. An illustration of a typical *maritima*. southern french specimen is now given here (22 h).

8. Genus: **Timora** Wkr.

T. striata Stgr. (Vol. 3, p. 248, pl. 51 a). The old name is to be cancelled and replaced by — **albida** *albida*. Hmps. (= *chitinipyga* D. Luc.) which is the valid denomination. The rather poor illustration is replaced by a better one (22 h). The name *striata* Stgr. is utilised in the Genus: *Argyrospila* for the species enumerated there (see Supplementary Volume p. 194, pl. 22 f). D. LUCAS established the Genus: *Lecerfia* for *chitinipyga*. The edge of the 7. tergite is bent upwards in the form of a heavily chitinised thick roll. Larva greenish white, coarsely granulated, with delicate pale brown dorsal and wide olive-brown subdorsal bands. It feeds in April and May on the seeds of *Aristida pungens*. Sahara (El Golea), in March and April.

T. tosta Moore (Vol. 11, p. 315, pl. 28 h). This species, that is known to occur in the indo-australian *tosta*. territory, has meanwhile been found to occur in Japan. It has rosy forewings with paler longitudinal stripes.

11. Genus: **Erythrophaia** Stgr.

- suavis.* **E. suavis** Stgr. (Vol. 3, p. 249) was not illustrated in Main Volume. A picture is now given here (22 h).
canroberti. **E. canroberti** Obth. is very close to *eudoxia* Stgr. (Vol. 3, p. 249, pl. 51 a) but smaller with more rotund formation of wings. Ground colour less monotonous, red-orange, more or less peppered with orange. Orbicular and reniform stigmata are distinct, as also are the two transverse lines and the subterminal line. Hindwings pale brown, darker at margin. Algeria (El Outaya) in May.
- rennenkampfi.* **E. rennenkampfi** (A. B.-H. i. l.) sp. n. (22 h) resembles both *suavis* and *eudoxia*. Smaller with shorter and wider wing contour. Ground colour is paler, a dull reddish pale brown. The arrangement of lines is similar, but central area is much wider, the whitish lines are finer and a less impure white, the posterior line only faintly curved. Reniform stigma and central shade slightly darker brown. The postmedian area is not paler and fringes are of same shade. Hindwings almost of the same colour as forewings, only slightly paler at base. Bokhara.

12. Genus: **Cladocerotis** Hmps.

This Genus (Vol. 3, p. 249) has been already dealt with on p. 54 in accordance with its correct position.

Subfamily: **Heliothidinae**.1. Genus: **Anartomorpha** Alph.

- diaphana.* **A. diaphana** W. Kozh. is only provisionally placed in this Genus, as it has naked eyes, otherwise it is said to resemble *potanini* Alph. (Vol. 3, p. 250). — ♂ antennae simple filiform. Body dark brown. Forewings dark grey-brown with indistinct markings. Both transverse lines are delicately black, very faintly visible, the anterior line almost straight, the posterior line sharply angulated outwards on vein 5. The central area between the two somewhat darker. Subterminally there is a dark shade, parallel to margin, in which black sagittate marks are visible; at the margin grey-white scales are intermixed. Stigmata absent. Fringes dark. Hindwings white with wide black marginal band, the white area dusted with blackish. Wing expanse: 28 mm. Minussinsk in August.

5. Genus: **Oxytrypia** Stgr.

- orbiculosa.* **O. orbiculosa** Esp. (Vol. 3, p. 252, pl. 50 a). The larva, which has been discovered by Dr. A. SCHMIDT, occurs from April to September in the tuber of *Iris pumila*. It is brownish grey and resembles an *Agrotid* larva.
- ussurica.* — **ussurica** Schaw. is much deeper black than the european nominate form. On forewings only the large white reniform stigma, the white apical patch, the basal transverse band and the dentate marginal line are distinct. The other transverse lines are only very faintly indicated and whitish. On hindwings the marginal band is wider and deeper black, so also are the streaks that extend to the base. Ussuri.

6. Genus: **Anarta** Tr.

A. rangnovi Pglr. (Vol. 3, p. 252). Vide what was said in this Supplementary Volume p. 101 (pl. 14 g) under *P. lamuta* Herz.

- myrtilli.* **A. myrtilli** L. (Vol. 3, p. 252, pl. 50 b). HEYDEMANN has made a special study of this species and states: *myrtilli* is the northern and english type with grey-brown and not red ground colour. As synonyms he adds:
fagnouli. — **fagnouli** Guth from the Wildseemoor in Baden and — *anglica* Obth. — **rufescens** Tutt (Vol. 3, pl. 50 b) is the
rufescens. usual central german red form, with variegated colours intermixed with olive-yellow and white and with red thorax, not grey as in type. — **mediosanguinea** Heydem. has the entire central area including the white central
mediosanguinea. spot widely and uniformly deep red, only the two transverse lines that outline it are white. Otherwise also the yellow and white colour is suppressed by red, so that the entire wing is red with the 4 white transverse
sulphurescens. lines. From southern Holstein. — **sulphurescens** Heydem. (= *ochrea* Debauche). Here the red is replaced by sulphur-yellow, the forewings are black with densely superimposed yellow scales, only the minute central spot
lugens. is white. The black of hindwings is increased. Southern Holstein, Belgium. — **lugens** Obth. has forewings marked as in type, the yellow of hindwings much reduced by an expansion of the black marginal band. From Berlin,
snelleni. also elsewhere in N. Germany, not rare. — **snelleni** Rbl. has entirely black hindwings. From Holland? — **virginalis.** **ginalis** Obth. is like the type on forewings, grey and olive brown with white subterminal line and central spot; hindwings are pure white, instead of yellow, with black marginal band.
- aureola.* **A. cordigera** Thnbg. (Vol. 3, p. 253, pl. 50 c). — **aureola** Stich. belongs to the form *suffusa*, but has ochreous yellow, instead of white, reniform stigma.
- koizumidakeana.* **A. koizumidakeana** Mats. closely resembles *melanopa vidua* Hbn. (Vol. 3, p. 253, pl. 50 c). Forewings with large black-brown spot between veins 4 + 5, that extends close to the margin, also at base of cell there

is a similar spot. Forewing on both sides of discal spot is pale grey; fringes black-brown, not checked. Hindwings black-brown; a white patch in disc, with a black brown spot inwardly. Antennae are simple and not lamellate. Wing expanse: 22—24 mm. Hokkaido.

7. Genus: **Panolis** Hbn.

P. flammea Schiff. (Vol. 3, p. 253, pl. 50 d). — **purpureofusca** Preissecker is a remarkably dark specimen, described from Lower Austria. — **sutschana** f. n. (22 h) has somewhat narrower and more pointed wing contour with more oblique margin. Ground colour is more heavily admixed with olive-greenish, especially in anal area, the transverse lines are almost obsolete, especially the posterior line which is only indicated by a few whitish scales. The subterminal line is quite absent, in place of same there are long white rays in marginal area, as a prolongation of the white checks of fringes. These are situate on each side of the black streaks on veins and extend to postmedian. Hindwings paler grey-brown. Sutshanski Rudnik in June. Type in the collection of O. BANG-HAAS. — **japonica** f. n. (22 h) somewhat resembles the previous form by the white marginal rays and the absence of the subterminal line. The ground colour is a bold red, all markings standing out boldly from the carmine red ground by a heavy appression of chalky white scales. Kobe, Japan, in April. Collected by HOENE, type in the collection of O. BANG-HAAS. *purpureo-fusca. sutschana. japonica.*

8. Genus: **Omia** Hbn.

O. banghaasi Strd. (22 i) closely resembles *cymbalariae* Hbn. (Vol. 3, p. 254, pl. 50 d) and differs by the faintly serrate antennae in ♂. Forewings are inclined to pale grey, instead of olive-green, the 3 black longitudinal streaks are bolder and deeper black. The underside is much paler grey, hindwings entirely or almost devoid of transverse bands. Abdomen is shorter than in *cymbalariae*. The type of STAUDER originated from around Naples, SCHAWERDA described 5 further specimens from Albarracin from an altitude of 1100—1700 m. *banghaasi.*

9. Genus: **Sympistis** Hbn.

S. melaleuca Thnbg. (Vol. 3, p. 254, pl. 50 e). — **penthica** Stich. has dark grey forewings with only slightly contrasting black marking. The hindwings are almost completely suffused with blackish, only a small patch near anal angle remaining pale. Lappmark. *penthica.*

S. nigrita Bsd. (Vol. 3, p. 255, pl. 50 e). — **aterrima** Meyer has completely jet-black forewings without the grey marginal area, only a little grey dusting is retained on costa. From the Mittenwald region at an altitude of 2100 m. *aterrima.*

S. funesta Payk. (Vol. 3, p. 255, pl. 50 e). — **kurodakeana** Mats. differs from nominate type by the black apical spot, from whence a diffuse black-brown band extends to anal angle. Hokkaido, Japan. *kurodakeana.*

S. lamata Herz (Vol. 3, p. 255) is already dealt with under *Polia* on p. 101 of this Supplementary Volume.

S. devagor Kozh. is declared to be a synonym of *Hel. bieneri* Rbl., but as the original description seems to be so absolutely different, I am enumerating the moth here, as it was originally described as an *Anarta*. Body with black hairs, collar and shoulders intermixed with white scaly hairs. Forewings grey-black, basal area with white interspersions. Anterior transverse line black, conjoined with the orbicular stigma, having a white inner edge. Outer transverse line is sharply bent outwards on vein 5, it has an outward white edge. Central area is black at inner margin. Reniform stigma is a small black spot. Orbicular stigma is longish. Both stigmata conjoined by a wide strikingly white bar. Subterminal area is paler, there are black cuneiform marks before the subterminal line. Fringes black with grey and white checks. Hindwings bright orange-yellow with narrow black marginal band. Fringes dark. Wing expanse: 27—29 mm. In Sajon (Kasyr-Ssuk river) flying by day around willow trees that are in bloom. *devagor.*

10. Genus: **Hypsophila** Stgr.

H. jugorum Ersch. (Vol. 3, p. 255, pl. 50 f). — **medialis** Strd. Forewings with red-brown suffused central area. On hindwings the disco-cellular spot forms a narrow crescent, that is widely separated from the inner edge of the marginal band. The marginal band is only curved on discal fold and not angulated. — **postlimbalis** Strd. Forewings normal, hindwings resemble the previous form, the marginal band is not angulated in centre on inner edge, but only gently curved. It is widely separated from discal spot. The type form, which was not well illustrated in Main Volume, is being illustrated afresh here (22 i). *medialis. postlimbalis.*

10a. Genus: **Chamyla** Stgr.

This Genus was omitted from Main Volume. According to HAMPSON it should be classified with the *Agrotids*, as should all *Melicleptriinae* and *Heliothidae*, because the hind tibiae bear spurs. It belongs in closest proximity to *Isochlora*. These are medium large Noctuids with moderately wide wing contour. Head and thorax

with coarse hairs. Eyes somewhat oval, naked. Palpi extending somewhat above the head, with long hairs and very short terminal segment. The ♂ antennae with fairly long pectinations, those of the ♀ shortly serrate. Legs weak and short, the hind tibiae with a few short spines, 2 bolder spurs at extremities. Abdomen fairly long, ♀ with short chitinous ovipositor. On forewings veins 3, 4 and 5 arise separately, 6 with 7—9 stalked arise behind the upper angle of cell. On hindwings 6 and 7 stalked. Only a few asiatic species.

Generic type: *Ch. arctomys* Alph.

arctomys. **Ch. arctomys** Alph. (= *idia* Stgr.) (22 i). Forewings greenish grey with a slight brownish hue, speckled with blackish and 2 dentate central transverse lines, the anterior one rather indistinct, interrupted in cell. Anteriorly to the posterior line there are blackish discal lunules. A dentate subterminal line is more or less distinctly recognisable, often consisting only of spots. Hindwings grey-black with white fringes and obsolete darker subterminal band. Thian-shan (Korla).

affinis. **Ch. affinis** sp. n. (22 i) is close to the previous species, but has wider wing contour, forewings with grey-white ground, speckled with grey-black, central area somewhat paler. Transverse lines marked as in *arctomys*, the anterior one wider and nebulous, not interrupted in cell, the discal spot bolder. The subterminal line black and expanding at costa, forming a "W" and projecting sharply on veins 3 and 4. Fringes with faint checks. Hindwings blackish grey with densely dark discal lunule and wide marginal band. One ♀ from Kashmir, Chalsi, on the palaearctic boundary, at an altitude of 5000 m. Captured in July. In the collection of O. BANG-HAAS.

intricans. **Ch. intricans** Alph. is a larger species. Forewings paler woody brownish, glossily scaled. The position of the transverse lines is only indicated by the somewhat darker central area. In place of the two stigmata there are merely indistinct darker patches. The subterminal is indicated by a row of obsolete cuneiform markings. Hindwings grey-black with faintly darker central lunule and pale brownish fringes. Wing expanse: 40 mm. From Juldus at an altitude of 13 000', captured in July.

vecors. **Ch. vecors** Pglr. (22 i). The wide forewings are pale brownish grey in ♂, inclined to whitish grey in ♀. The diffuse transverse lines are grey-brown. The anterior line forms an arc between costa and mediana, extending from there in 2 sharp dentations to inner margin. The outer one in a flat curve embraces the whitish reniform stigma and conjoins with the anterior line at inner margin. Subterminal line absent. Hindwings grey-black with pale fringes. Antennae of ♂ with short stiff pectinations. Altyn-dagh.

11. Genus: **Cteipolia** Stgr.

isotima. **C. isotima** Pglr. (22 i) belongs in the same section as *sacelli* Stgr. (Vol. 3, p. 256, pl. 50 f). They closely resemble one another and are of the same size and colouration. The margin of forewings is more rounded and less oblique. The stigmata are of the same shade as ground colour but with dark circumscriptions, irregularly formed and not replaced by black bars. Orbicular stigma round with dark centre, reniform narrow with central streak. On underside of forewings the central spot is absent, on hindwings it is narrower and without the black central ray. Forewings of ♂ with dark suffusion in basal area. Tien-shan.

It should be remarked here that HAMPSON classified the Genera *Sympistis*, *Hypsophila* and *Cteipolia* to the *Cucullianae*, when they would be placed between *Dasysternum* and *Dasythorax* (p. 147 of the Supplement).

12. Genus: **Heliothis** Tr.

majellana. **H. cardui** Esp. (Vol. 3, p. 256, pl. 50 f). — **majellana** Dhl. has dark olive coloured forewings with narrow ivory-white central band consisting of 3 isolated spots. Marginal area not paler. Hindwings widely black with narrow white transverse band. Southern Abruzzi.

bieneri. **H. bieneri** Rbl. strongly resembles *chanzyi* Obth. (Vol. 3, p. 256, pl. 50 f) differing by the regularly curved vinous subbasal band and completely black hindwings. Transbaikalia.

scottii. **H. scottii** Trti. Smaller than the very similar *chanzyi*, forewings crimson-red-brown with pale ochreous central band, which is much narrower than in *chanzyi* and *cardui* and enclosed on both sides by dark claret coloured lines. Marginal area pale yellow, bestrewn with rose and bold claret-red marginal line. Fringes pale yellow intermixed with pink. There is an oval discal dot in central band. Hindwings dusky blackish with white hairs at base and along inner margin and with a more or less distinct whitish central band that is dusted with dark. Fringes white. Wing expanse: 15 mm. Tobruk (Cyrenaica).

multiplex. **H. multiplex** sp. n. (*Corti* i. l.) (22 i) is a remarkable little species that differs considerably from the others. Body black, head and collar interspersed with grey-white hairs, palpi completely white with slight black admixture laterally. Metathorax with white hairs in the shape of a "U" opening towards the front. The short anal tuft ochreous yellow. Forewings black with crimson-violet-bronze sheen, base white. A yellowish white central band that expands in centre and contracts at inner margin. The black reniform stigma is situate

therein and anterior to same a small black spot on costa; marginal area permeated with grey hairy scales. Fringes ochreous. Hindwings black with white central band which does not extend either to the costa or inner margin. Fringes yellow. Alai.

16. Genus: **Panemeria** Hbn.

P. tenebrata Scop. (Vol. 3, p. 258, pl. 50 g). — **satiata** Dhl. Forewings a rich dark brown, all markings *satiata*, suppressed, no pale patch in central area. S. Tyrol; Torbole. — **flavescens** Dhl. has, instead of an orange, a *flavescens*, pale yellow central band to hindwings. Torbole; Campagna; Majella.

21. Genus: **Omorphina** Alph.

O. aurantiaca Alph. (Vol. 3, p. 259, pl. 50 h). — **tibetica** Strd. markings on forewings are more distinct. *tibetica*. Fringes at base of hindwings deep red, paler at outer margin. Thibet. — **chrysostigma** Pglr. (22 k) differs from *chrysostigma* type form by having a longish glossy golden spot below the central cell, such as occurs in certain *Plusias*. Kuku-Nor.

22. Genus: **Mesotrosta** Led.

M. signalis Tr. (Vol. 3, p. 259, pl. 50 h). — **asignalis** Schwing. has unicoloured dusky brown forewings *asignalis*, with barely visible stigmata. — **unimacula** Schwing. has no orbicular stigma. — **rubrimaculata** Schwing. has a carmine orbicular stigma and pink reniform stigma outlined by carmine. All 3 forms from around Vienna.

M. incerta Stgr. (22 k) was omitted from Main Volume. The type has been submitted to me, but I was unable to ascertain its generic classification and I am therefore leaving it here. Thorax pinky white. Forewings with ochreous pink ground dusted with grey. The antemedian consists of 2 arcs and is faintly darker. There is an indistinct central shade and traces of a grey orbicular stigma. Reniform whitish with faint, delicate black circumscription; posterior to it in a wide arc, a fine black postmedian that describes a deep concave arc towards the base between nervures 1 and 3, projecting in a pointed dentation outwards on vein 1. A subterminal is discernible through the contrast between the grey wing surface and the narrow pale marginal area, it protrudes outwards on veins 6 and 4. Hindwings pale brownish grey with fine marginal line and light fringes. Ussuri.

Subfamily: **Erastrianae**.

2. Genus: **Penisa** Warr.

P. ornata Willem. Forewings a rich ochreous, dusted with vinous brown in basal area, both transverse lines vinous brown, undulate and dentate, the outer one bending inwards below the cell. The central area between the two is paler vinous brown with a comma-shaped discal spot. The undulate subterminal is deep reddish brown and intersects at outer margin a nebulous patch of the same colour. Hindwings similar, but the anterior transverse line is missing, the basal area is not ochreous; the discal spot is black and there are black dots at margin. Fringes ochreous yellow with deep red-brown markings. Wing expanse: 18 mm. Hondo (Yamato) in June.

4. Genus: **Leptosia** Guen.

L. velox Hbn. (Vol. 3, p. 260, pl. 51 b). — **rubescens** Schwing. (= *vinacea* Joan.) denotes specimens flushed with pink. Especially the ♀♀ are nicely dusted in disc of forewings with rose and are darker and more clearly marked. Spain and Morocco. — **subrufescens** Dhl. is suffused with a bright orange, transverse lines and central shade orange-red without any traces of dusky line markings. Tivoli, Campagna, mountains of Albania.

L. velocissima Trti. is midway in size between *velox* and *velocior*. The ground colour inclines towards a rich brownish, transverse markings are not black, but a deeper brown than the ground; the marginal area is dusky grey, there are two darker nebulous patches behind the postmedian, below costa and above inner margin. The transverse lines commence at darker brown, heavily marked dashes on costa. Orbicular stigma is a distinct fuscous dot. Hindwings similarly brown and grey mixed, almost whitish at anal angle with 2—3 darker dotted transverse lines. Wing expanse: 16—18 mm. Cyrenaica (Derna) in October.

L. tarda Trti. The author gives this name to a species illustrated as *velocior* Stgr. by OBERTHÜR-CULOT (Et. Comp. Tab. 407, No. 4136). This may be merely a race of *velocissima* from Algeria, but it appears to be new. The specimen is still smaller than *velox*, similarly fuscous in colouration and with 3 jet black wide transverse lines; basal area and inner margin rather more heavily dusted with grey, the hindwings also are widely suffused with grey at inner margin. Underside of hindwings is almost completely white, only the inner margin is somewhat dusted with reddish. In *velocissima*, on the other hand, it is brownish pink, dusted with brown.

L. amanica Osth. apparently also closely resembles *velocior*, forewings are remarkably wide and pointed with sharply protruding apex. They are dusty grey, somewhat inclined to yellowish or buff with 2 faint trans-

verse lines; the anterior line extends from 1st third of costa commencing there in a dark spot, proceeding firstly in a wide, flat curve which turns outwards, then almost vertically to inner margin. The posterior line commences above the reniform stigma, also at a deeply black dot, circumvents the stigma in a semicircle and then proceeds straightly to inner margin; it is much less undulate than in *velox*. The subterminal line is pale, obtusely dentate, edged on its inner side by a wide dark shade. On the margin there are delicate dark striations. On costa towards the apex are 4 white costal dashes. Hindwings unicolourous, indistinctly paler in basal and central areas. Fringes pale dull yellow. Wing expanse: 21 mm. Taurus.

dilutior. *L. dardouini* Bsd. (Vol. 3, p. 260, pl. 51 b). — **dilutior** Schwing. is a much paler local form from Dalmatia. — **mala** Strd. has the shade before the subterminal line on forewings coloured red. From the Mediterranean.

6. Genus: **Eublemma** Hbn.

rubellina. *E. arcuinna* Hbn. (Vol. 3, p. 261, pl. 51 c). — **rubellina** Schaw. denotes specimens more heavily flushed with reddish. From around Vienna.

virilis. *E. suava* Hbn. (Vol. 3, p. 262, pl. 51 c). — **virilis** Strd. denotes a form that is rather more grey on forewings.

spirogramma. **E. spirogramma** Rbl. reminds one of *C. scitula*, but is nevertheless very different. Forewings snow-white with 2 blue-black costal spots in subbasal region. The outer one indicates the commencement of an anterior transverse band, of which only fractional traces are visible; the posterior transverse line forms a semicircle outwards in the centre, it has a narrow snow-white edge and it circumvents a large black and steely blue scaled spot that expands anteriorly to a large almost triangular costal spot. Its base extends from centre of costa almost to the apex. The postmedian has a somewhat brownish outer edge. Marginal area is white, grey dusted patches in antemarginal area. Fringes blue-grey. Hindwings white, brownish at margin, with darker central line and 3 lines situate in the dusky marginal area. Wing expanse: 17 mm. Mokattam mountains near Cairo, in November.

geyri. **E. geyri** Rothsch. should possibly be classified here near *spirogramma*. Antennae brown, except the shaft, which is white on upperside. Head and collar violet-brown, thorax and abdomen yellowish pink. Forewings pinky yellowish white with a large round black postmedian spot with dull greenish grey centre. Posterior to same a boldly undulate grey-blue postdiscal band. Margin and fringes are widely violet-brown. Hindwings yellowish white with delicate deep brown marginal line. Wing expanse: 14 mm. Algeria (Tahout) in April. The species was denominated from 3 ♀♀.

kuelekana. **E. kuelekana** Stgr. (Vol. 3, p. 262, pl. 51 d). The illustration was bad. We are giving a better one here (22 k) from a specimen captured at Akshehir.

7. Genus: **Calymma** Hbn.

cinnamomea. *C. communimacula* Schiff. (Vol. 3, p. 262, pl. 51 d). — **cinnamomea** Trti. denotes a much paler, very light pinky form, the brownish marginal shade much fainter, narrower and fading away entirely towards the anal angle. The brown innermarginal spot is a pale cinnamon-brownish. Abruzzi. — **gracilis** Osth. is similar, but much smaller. Wing contour is somewhat narrower, body sleeker. Forewings paler, more yellowish in basal and central areas, the brown innermarginal spot is narrower. Taurus (Marash) in May and June.

8. Genus: **Coccidiphaga** Spul.

nitidula. *C. scitula* Rbr. (Vol. 3, p. 262, pl. 51 d). — **nitidula** Dhl. (23 a). This is an almost white form in which the wide leaden grey shade in central area is completely absent. There is only a black central dot in the place of the reniform stigma. Anterior to same there is an indication of a costal spot with a few dots at apex. Hindwings are only slightly dusky at margin. Tivoli, Campagna. The name will probably have to be withdrawn.

virginalis. should — **virginalis** Ragusa, which was described earlier from Sicily, prove to be identical. This is also a very small form with pure white wings with scarcely any markings.

10. Genus: **Porphyrinia** Hbn.

fumosa. *P. parva* Hbn. (Vol. 3, p. 263, pl. 51 d). — **fumosa** Wgnr. is a very dusky smoky brown *rubefacta* form from S. Dalmatia. — **lactescens** Trti. in contrast thereto is a pure white form, the markings indicated in cinnamon-brown. Berca, Cyrenaica in October.

straminea. *P. ostrina* Hbn. (Vol. 3, p. 263, pl. 51 d). — **straminea** Rbl. has straw coloured forewings devoid of markings with faintly brownish subdivided apex and black dots thereunder.

pseudostrina. **P. pseudostrina** Rothsch. denominated from a single ♀, looks like *ostrina-carthami*, but can be distinguished immediately by the sooty grey fringes and similar apex. It differs further from *carthami* by the dark

band that extends to apex but which ends before the apex in *carthami*. Besides this the species is much smaller, head and thorax are golden yellow like the forewings, the oblique band is brown. Wing expanse: 17 mm. Algeria (Guellet-es-Stel) in August.

P. trachycornis *Strd.* should perhaps best be classified next to *ostrina*. Forewings straw coloured with a 1.5 mm wide dark brown antemedian band, that is separated by 4 mm from base both at costa and inner margin. Its outer edge is definite, almost straight, the inner edge is somewhat diffuse. Posterior to this band are 6 light punctiform spots on costa. From the outer of these there arises a narrow pale band that is edged on both sides by blackish and that extends parallel to margin. Below costa and above inner margin this band forms a small open bend towards the margin. In the upper corner of this there is a triangular blackish streak, and beyond same a blackish cuneiform mark pointing towards the apex. On margin there is a narrow black line. Fringes with blackish checks. Hindwings grey-brown. Wing expanse: 16 mm. Honshu, Japan. *trachycornis*.

P. cyrenaea *Trti.* (23 a) is smaller than *parva*. Forewings pale yellowish pink with barely visible darker subbasal; between the two darker transverse lines, that are edged with white on averted sides, the central area is faintly dusted with grey. The anterior transverse line extends vertically to inner margin and not obliquely as in *parva*. The posterior line is only widely convex behind the reniform stigma. At apex there is a brown spot. On margin between apex and centre of wing there is a row of delicate black spots. Hindwings monotonous brownish with paler fringes and a very fine brown marginal line. Wing expanse: 12 mm. Cyrenaica (Berca) captured in May. *cyrenaea*.

P. noctualis *Hbn.* (= *paula* *Hbn.*) (Vol. 3, p. 264, pl. 51 e). As ZERNY has ascertained, the type in all probability emanates from S. Europe. These specimens are larger and paler than the central european specimens from Germany and Lower Austria and their markings are more richly contrasting. They have a pure white central area with more distinctly reddish brown antemedian; — **egestosa** *f. n.* is now the denomination given to the smaller, darker and less distinctly marked more northerly race. *noctualis*, *egestosa*.

P. permixta *Stgr.* (Vol. 3, p. 264). This species has meanwhile been obtained by ROTHSCHILD in some numbers from Algeria and a number of subforms have been named. We are now illustrating the small species (23 a). — **arenosa** *Rothsch.* is the sandy buff desert form. — **intermedia** *Rothsch.* a transition form to same. — **nivescens** *Rothsch.* is an extreme white form and finally — **mozabitica** *Rothsch.* has violet-reddish dusting. The species occurs from March to May, the last-named form was described from Ghardaia. *permixta*, *arenosa*, *intermedia*, *nivescens*, *mozabitica*.

P. caprearum *Drt.* (23 a). HAMPSON placed this small species with *permixta*, referring in doing so, to a specimen from Capri. It is much more closely related to *viridula*. Body and forewings are snow-white, the anterior transverse line is oblique as in *viridula*, anterior to it there is a narrow olive band. The central area is dusted with pale olive. The posterior transverse line has a pointed angulation in the centre that almost extends to margin, bending on vein 6 as far as the 2 black subapical spots and proceeding on the submedian fold in an angle towards the anal angle. It is white and is only visible as it contrasts from the pale olive tone of marginal zone. The wide fringes are intersected by 2 pale olive-grey shadow lines, anterior to same only below the apex 2—3 minute dark marginal dots. Hindwings whitish, slightly dusky towards margin. Capri, in June. *caprearum*.

P. rosea *Hbn.* (Vol. 3, p. 265, pl. 51 f). The name — **imperialis** *Schaw.* denotes a specimen from Dalmatia that is completely flushed with rosy red. — **schernhammeri** *Rühl* is now illustrated (22 k). — **decolorata** *Wgnr.* is larger and sleeker than *rosea*, pale brownish rose, the basal area olive-brown towards the centre, the white line with more acute dentations towards the base. The violet-red transverse streak that extends from apex to inner margin, is absent. Underside completely devoid of rose. Perhaps this is a genuine species. Wing expanse: 28 mm. Ili territory from around Djarkent. *imperialis*, *schernhammeri*, *decolorata*.

P. nelvai *Rothsch.* should probably be placed next to *polygramma* (Vol. 3, p. 266, pl. 51 g). Head and collar are pale cinnamon-red, thorax paler, abdomen dark reddish grey. Forewings pale violet-rose inclining to fuscous on costa towards apex. The cinnamon-red central line is edged with yellow-white and is sharply angulated outwards at disco-cellular nervure. In the angle is the sooty black reniform stigma. The posterior transverse line is less distinct, it is a similar shade of brown and is angulated. Behind it there is an interrupted subterminal line consisting of sooty black dots. Marginal line yellow-white, edged with fuscous inwardly. Fringes fuscous. Hindwings blue-grey with yellow-white marginal line having brown inner edge. Wing expanse: 20 mm. Batna. *nelvai*.

P. polygramma *Dup.* (Vol. 3, p. 266, pl. 51 g). The illustration is scarcely recognisable, we are therefore illustrating this pretty species again (23 a). We are also giving a picture of the form — **pudorina** *Stgr.* (23 a). The species is in fact very variable, besides the blue and violet-grey forms, specimens occur that are pinkish and even almost whitish. The ♂♂ are frequently inclined to pinky brown. *polygramma*, *pudorina*.

P. maraschensis *Osth.* seems most closely related to *hansa* (Vol. 3, p. 264, pl. 52 a). It is equally large, similarly built, deeper straw coloured yellow, the markings more diffuse and less distinct. Forewings unicoloured yellow to central shade, the latter is a narrow straight brownish band; beyond same there is a similar outer transverse line, that has a narrow yellow outer edge extending to the pale brownish marginal area. A *maraschensis*.

pale wide subterminal line is situate therein, which is angulated inwards below apex. Above and below the disco-cellular nervure there is a delicate reddish black dot and subapically on costa, 3 brownish striations. Hindwings straw coloured yellow, brownish in marginal area, fringes white with filiform blackish marginal line, which also occurs on forewings. Body yellowish white, head almost white. From Marash (Taurus), mid July.

P. albicans Guen. (Vol. 3, p. 267). Further research appears to be necessary in regard to this and the following species. According to OBERTHÜR and ROTHSCILD, *albicans* Guen. (Bsd.) is not identical with *albiguenéi*, *cans* Rmbr. If this is so, SPULER was right, when he gave the name — *guenéei* Spul. to the species of RAMBUR, said to be the same as *grata* Guen. (nec. TREITSCHKE), as the name *grata* had been utilised for a form of *respersa*. The specimens that WARREN, following HAMPSON, denominated *albicans* Guen. should be named *guenéei*, as they are identical with RAMBUR's species and not with that of GUENÉE. The illustration denoted "*grata*" (52 a) should be denominated *guenéei*, even though it is barely recognisable.

albicans. **P. albicans** Guen. From what is said in preceding paragraph, this may be a genuine species and should be classified separately. Possibly it is only a form of the previous species. It is entirely devoid of markings, glossy pure white, without a vestige of transverse lines or stigmata, only a minute brown spot at end of cell. Marginal line is also absent. Spain, 2 ♂♂ also from Algeria (El Outaya), in May.

faroulti. **P. faroulti** Rothsch. (Vol. 3, p. 267), is erroneously illustrated in Main Volume (pl. 51 g) as *candicans*, which is a separate species.

candicans. **P. candicans** Rmbr. (Vol. 3, p. 267) is now illustrated (23 a) from a specimen from the PÜNGELER collection. It is not white, but ochreous brownish and much more richly marked than *faroulti*. — *ramburi* Obth. *extraria* is a form with wider and more shaded posterior transverse line. Algeria. — *extraria* Rbr. is not a simple synonym, but a deeper brown form that may occur as well in the ♂ sex. Also from Algeria.

albida. **P. albida** Dup. (Vol. 3, p. 268, pl. 51 g, h). A number of new denominations have been made for forms of this very variable species. — *luteoalba* Strd. is yellowish white, the subterminal line has a reddish inner edge, the tips of fringes are red, except at apex and anal angle. Hindwings with obsolete brown subterminal band. Algeria. — *albidior* Culot is a pure white form, almost devoid of markings. — *brunnescens* Culot is completely suffused with ochreous brownish. — *ochreola* Trti. denotes a transition to *gratissima*. Base of forewings and transverse lines are very delicately ochreous. Cyrenaica. — *peralba* Schaw. is a small, brilliantly white glossy form, transverse lines delicate, barely visible, yellowish, a minute black dot in centre of forewings. Fringes and hindwings pure white. Mosul.

symphona. **P. symphona** L. B. Prout belongs to the *albida* group. Body and forewings pure white, delicately shaded with reddish yellow, especially behind the postmedian. Beyond this there is only one spot on costa, and 1—2 minute costal spots with a very fine subterminal which remain white. The subbasal and antemedian transverse lines are pale ochreous, diffusing completely towards inner margin; the central line as in *albida*, but faint and somewhat dusted with yellowish red inwardly. Between it and the posterior transverse line there is a white band. Orbicular stigma obsolete, on disco-cellular nervure 2 delicate black dots; before the margin between the veins a row of minute black dots. Posterior to these is a barely visible marginal line. Base of fringes is pure white, faintly shaded at apex; between the veins triangular darker markings, behind these a fine white line and the tips are again dark. Hindwings glossy pale yellowish red, more whitish at base and with diffuse central line. Fringes white with faint traces of yellowish red mottlings. Wing expanse: 28 mm. Morocco (Tizi N' Test and Djebel Imress) at an altitude of 2000—2400 m, in May.

virginalis. **P. virginalis** Obth. (Vol. 3, p. 269, pl. 51 h). To be added as a synonym to this species: — *subterminalis* *bivitta* Rothsch. — *bivitta* Obth. denotes brownish suffused ♀♀ specimens with 2 striated dots at end of cell instead of one, as in the form *caid*. TURATI places these two latter forms as synonyms to *suppura* Stgr.

emir. **P. emir** Obth. appears to be a genuine species. Forewings bright yellow with the posterior grey transverse line displaced almost to the centre of wing. It extends in a curve from costa to inner margin. There are frequently small black cell spots with a brownish longitudinal shade from cell spot to margin. A very rare species. Algeria (Géryville, Aflou, Lambessa, Guelt-es-Stel) occurring from June to September.

nucha. **P. griseola** Ersch. (Vol. 3, p. 269, pl. 51 n). — *nucha* Strd. denotes specimens without the brownish dusting, instead of same there is a subterminal row of black dots.

striata. **P. pura** Hbn. (Vol. 3, p. 269, pl. 51 i). — *striata* Culot has forewings coloured a more ochreous yellow with a brown longitudinal streak from the black cell spot to the margin. Algiers.

cremorna. **P. cremorna** Hmps. is closely related to *conistrotta* Hmps. (Vol. 3, p. 268, pl. 51 i). Head and thorax are white, abdomen inclined to yellowish, dusted with pale yellow-grey. Forewings with white costal area, the remainder including the fringes yellow-grey, peppered with black, which is denser between the veins. Hindwings yellow-grey. Wing expanse: 20—27 mm. Algeria and Tunis. From March to May.

P. confusa *Rothsch.* is also similar to *conistota*. Apex of forewings is more acute and more protracted *confusa*, than in *cremorna*, from which *confusa* also differs by the dark, divided apex and the rather more pronounced median fold. The forewings are rather more irregularly peppered with black and the subapical area is flushed with rusty yellow. Apex of forewings is divided by a dark oblique line. The median fold is especially deep and abnormally developed with a second shorter fold below, both heavily scaled with black. Hindwings darker grey with pale fringes. Wing expanse: 18—24 mm. Algiers. From April to June.

P. lacteola *Rothsch.* is a completely milky white species, which differs from the other allied forms by the *lacteola*, longer and narrower wing contour and extremely long fringes. Forewings entirely devoid of markings. Wing expanse: 31 mm. Algeria, captured in May.

P. eburnea *Trti.* is related to *virginalis*. It is smaller and pure white, without any yellowish tone, com- *eburnea*, pletely without black dots and other markings, only the tips of scapulae are somewhat yellowish, as also are the antennae, abdomen and legs. Size is not indicated. From 1 specimen from Giarabub (Cyrenaica). Differing from *albivestalis* *Hmps.* by the somewhat narrower, longer wing contour, the absence of the discal spots and the costal shading on underside. This description leads one to think that it is identical with *lacteola*.

P. arida *Rothsch.* is unknown to me, but should probably classified somewhere here. Head and collar *arida*, white, thorax pale grey, abdomen grey with pinkish yellow hue. Forewings pinkish yellow-brown. Hindwings creamy yellow, faintly flushed with rose. The outer margin of forewings very straight, not so rounded as in most of the other species. The ♀ is whiter, somewhat shaded towards the margin. Length of forewings: ♂ 11 mm, ♀ 10 mm. Algeria, southwards of El Golea.

P. ernesti *Rothsch.* is also unknown to me. Antennae white on top, brown below. Head, thorax and *ernesti*, abdomen white. Forewings white with grey spot at end of cell and a submarginal row of minute black dots. Hindwings yellowish white. Wing expanse: 25.5—28.5 mm. Algeria (Oued Nça), April.

P. pernivea *Rothsch.* is also a pure snow-white species completely devoid of markings, but much smaller *pernivea*, and with wider wings than the previous species. Wing expanse: 22 mm. Algeria (Ain Sefra, Sebdou, Les Pins) occurring from May to September. Nothing definite can yet be said as to whether all these small white, very similar moths, which are no doubt subject to considerable variation in size, can claim a right to specific rank.

P. crocea *Rothsch.* Head dark yellow, thorax and abdomen somewhat paler and more reddish. Fore- *crocea*, wings saffron-yellow, devoid of markings, hindwings yellowish white. Wing expanse: 20 mm. This species was held to be a brilliantly coloured aberration of *deserta* *Stgr.* (Vol. 3, p. 269, pl. 51 i). It was captured in April at Ain Tahart (Algeria).

P. leucanides *Stgr.* (Vol. 3, p. 269, pl. 51 i). The illustration is not recognisable. A better one is given *leucanides*, here (23 a).

P. suppuncta *Stgr.* (Vol. 3, p. 269, pl. 51 h). Here also the illustration was poor and a better one is now *suppuncta*, given (23 a).

10a. Genus: **Autoba** *Wkr.*

Owing to a mistake, the number 10 was duplicated in the Main Volume for this Genus.

A. sabulosa *Rothsch.* is related to *gayneri* *Rothsch.* (Vol. 3, p. 270). Head, thorax and abdomen are sandy *sabulosa*, yellow, similarly the forewings, which are shaded slightly darker. Before the centre there is an indistinct rusty brown line and beyond a wide distinct fuscous band. The latter extends upwards only to the subcostalis. There is a subterminal bluish grey-brown band and on the margin a row of black dots. Hindwings glossily silky yellowish white. Length of forewings: 14 mm. From 1 ♀ from south Oued Mya.

A. gayneri *Rothsch.* (Vol. 3, p. 270). We are now able to give an illustration of this small species (23 a). *gayneri*. It is very variable. I have specimens bred by ANDRES, which are of almost whitish ground colour, varying to dark cinnamon brown. The transverse lines are similarly variable, occasionally they have white outer edges, occasionally not, the discal spot is also variable and is sometimes isolated in a nebulous patch. There may also be a second black dot in centre of cell, so that the description would quite well apply to that of *beraudi* *Joan.* (Vol. 3, p. 270, pl. 51 m). As all these specimens were bred from larvae collected from one and the same tamarisk tree in the neighbourhood of Cairo, where they fed on Coccidae, I cannot bring myself to believe that there is any specific difference. In my opinion *beraudi* is merely the reddish form of the more whitish *gayneri*.

16. Genus: **Sophtha** *Wkr.*

S. infrarubra *Strd.* is related to the indian *excisa* *Hmps.* and *ruficeps* *Wkr.* (Vol. 11, p. 257, pl. 23 i, k). *infrarubra*, *infrarubra* differs from *ruficeps* by the paler grey ground colour which is only faintly suffused with violet-lilae.

It is only sparsely peppered with black, but the marginal area is more heavily shaded; the anterior transverse line is extinct, it consists of an inner paler and outer darker half, undulate and more heavily convex towards the margin. A black dot in centre of cell, only 2 distinct black discal spots. The posterior transverse line is much paler and more sharply marked, its inner darker edge is less distinct. The veins stand out slightly paler. Forewings are red on underside, hindwings straw coloured with red speckles in marginal area. Size is not indicated. From Kagoshima, Japan.

17. Genus: **Corgatha** Wkr.

ruficeps. **C. ruficeps** Wkr. (= *sparsa* Wkr., *castaneiceps* Hmps.). This species, which is known from Ceylon and Borneo (Vol. 11, p. 257, pl. 23 k) (as *Sophtha*) according to WILEMAN, also occurs in Japan (Hondo).

yoshinoensis. **C. yoshinoensis** Wilem. Ochreous brown with reddish tone and sparsely speckled with blackish. Forewings paler along costa, with 3 black dots in disc in place of stigmata. The ochreous brown transverse lines have grey edges on the sides facing one another. The posterior line is incurved over the centre. The ochreous yellowish subterminal line extends obliquely from costa to the outer extremity of vein 4, thence undulate to anal angle. Hindwings with grey edged ochreous yellow discal lunule. The postmedian similarly with a grey inner edge which is bluntly angulated in centre. Subterminal line as on forewings. Wing expanse: 22 mm. Hondo (Japan).

pygmaea. **C. pygmaea** Wilem. Pale brown with vinous dusting, sparsely speckled with black. On forewings there is a discal dot and an oblique posterior transverse line. Hindwings with blackish central line and discal spot, the former is a continuation of the band of forewings. On margin there are black dots. Wing expanse: 13 mm. Hondo (Japan).

18. Genus: **Stenoloba** Stgr.

umbrifera. **St. umbrifera** Hmps. Head white with sparse black scales, thorax predominantly black-brown, abdomen inclined to whitish. Forewings white, peppered with black, basal area suffused with black. There are 2 indistinct blackish transverse lines before the centre, beyond same a diffuse black oblique central band that expands towards the costa. Near to the end of cell a black streak and black dots at angles of cell. The posterior transverse line is indistinctly blackish, excurved around the end of cell. It extends to the lower angle of cell and then in undulations to inner margin. The area behind same is dusted with black down to vein 2. The subterminal is only indicated by the outer edge of this blackish area. On margin there are black striations. Fringes whitish with blackish central line. The whitish hindwings are dusted with black-brown. Wing expanse: 24 mm. Chungking (Central China).

20. Genus: **Phyllophyla** Guen.

deserti. **Ph. numerica** Bsd. (Vol. 3, p. 274, pl. 51 k). — **deserti** Obth. is a small pale form in contrast to *disjecta* Warr. from Algeria (Sebdou, El-Outaya), in May. According to ROTHSCHILD *deserti* is only an aberrative form, the usual algerian form being *disjecta*. — **sardoa** Rothsch. denotes the larger and more boldly marked sardinian form.

cretacea. **Ph. obliterated** Rmbr. (Vol. 3, p. 274, pl. 51 k). We are now able to give a good illustration of the form — **cretacea** Bllr. (23 a). — **matutina** Dhl. is an extremely pale, — **nocturna** Dhl. an especially dark form from the S. Tyrol (Terlan). — **cothina** Dhl. designates specimens that are warmly suffused with violet-red. Transition forms occur inclining to grey-blue with richly variegated markings. Torbole (Sarca valley).

21. Genus: **Ozarba** Wkr.

mesopotamica. **O. moldavicola** H.-S. (Vol. 3, p. 275, pl. 51 l). — **mesopotamica** Schaw. is a much paler form, forewings pale brown with black and white markings. No black marginal band and no black shade before subterminal line, with pale reniform stigma and white and black checked fringes. Hindwings inclined to blackish grey. From Mosul, captured in June.

27. Genus: **Lithacodia** Hbn.

sordida. **L. fasciana** L. (Vol. 3, p. 277, pl. 52 b). — **sordida** Hannem. is a paler yellowish grey suffused form, that has been described from the neighbourhood of Berlin. Probably the name corresponds to the form *guenéei*, which also embraces paler brownish specimens. — **ochrea** Derenne has brown forewings with yellow subterminal area and is probably only an extreme *guenéei*. From Belgium.

eburnea. **L. deceptor** Scop. (Vol. 3, p. 278, pl. 52 d). — **eburnea** Hannem. is a form with yellowish white, instead of pure white markings. From around Berlin.

L. larentioides *Strd.* resembles the indian *larentiformis* *Hmps.* from Sikkim. Forewings black-brown, *larentioides*, intermixed with fuscous and grey. In marginal area violet-grey, edged inwardly with a whitish grey almost straight transverse line. At vein 6 it forms a rectangular bend. Below vein 4 with a black dot placed near the margin. The anterior transverse line is black with ochreous and white inner edge, creating the impression of a pale oblique transverse band. The large grey reniform stigma diffuses along the costa almost to the base. Orbicular stigma grey, postmedian line double interfilled with ochre. Hindwings grey-brown. Length of forewings: 13 mm. Japan (Karapin).

L. martjanovi *Tschetv.* (not *Tschstr.*!) (Vol. 3, p. 279). We are now in a position to give a good illustration of this strange species (23 a). *martjanovi*.

L. blandula *Stgr.* (23 a) was omitted from Main Volume. STAUDINGER created the Genus *Brpophilina* *blandula*, for it, but from the type before me, I can find no radical difference from *Lithacodia* and I am therefore classifying the species here. It does not differ so very much from related species, especially from *mollicula* (= *mollis* *Graes.*). Forewings brown intermixed with bluish grey at centre of inner margin and towards the outer margin. At end of cell and in postmedian region the predominant colour is white. Transverse lines indistinct, the posterior one dentate. Orbicular and reniform stigmata with black circumscriptions, from the former a short double black streak, interfilled with white, extends to a bold double central line, that is situate vertically to inner margin. There are a number of small white dashes subapically on costa, the apex itself is divided by a faint whitish streak. There are blackish striated dots before and behind the subterminal line, which is only barely indicated. Hindwings reddish brown. Head and thorax white, the latter suffused with bluish grey, collar fuscous, abdomen brownish.

28 a. Genus: **Coelites** *Trti.*

A remarkable Genus, that does not seem to fit in anywhere correctly. TURATI bases himself on the opinion of the Abbé JOANNIS, who stated it was an *Erastrianid*, although according to the sketch, the neuuration is completely unusual and shows no relationship whatever to any other Genus. Frons with triple pointed black-brown chitinous projection. Palpi short, projecting slightly, densely covered with short hairs. Antennae bipectinate. Abdomen short, not extending beyond anal angle. Forewings with slightly rounded apex, cell open, with furcated discal fold. Vein 1 with a bladder-like, obliquely grooved protuberance at base; 3, 4 and 5 arise closely together from the lower angle of cell, 6 arises from below the upper angle, 7 and 8 on a long stalk somewhat anteriorly, 9 and 10 similarly stalked, a good bit anteriorly; 11 anastomoses with the costalis, but emits a small short branch that does not extend as far as the costa. Hindwings narrow and long with somewhat indented costa; 3, 4 and 6, 7 on long stalks, 5 arising from centre of disco-cellular, 8 near centre of cell. Nothing is said in the original description in regard to the structure of the legs. Only 1 species:

C. patanei *Trti.* (23 b). Forewings mother-of-pearl grey, sparsely and finely dusted with black, becoming increasingly dusky brownish in outer third. Anterior transverse line indicated by a dark brown streak on costa, postmedian by 2 similar short striated dots one below another. A heavy dark brown central line extends from costa to inner margin having an obtuse angled bend at close of cell. Brown internerval dots at outer margin. Fringes with white basal line, extremities brown. Hindwings pale yellowish brown, paler towards base, with dark central shade and whitish fringes. Wing expanse: 30 mm. From 2 ♂♂ from Benghazi (Cyrenaica). *patanei*.

29. Genus: **Eustrotia** *Hbn.*

E. uncula *Cl.* (Vol. 3, p. 280, pl. 52 e). — **lineola** *Dhl.* denotes specimens in which the outer of the 2 white lines, forming the white outer marginal stripe, is suffused with brown dusting, so that only the inner fine silvery white line is left. S. Tyrol, also occurring in the upper bavarian moors. *lineola*.

E. olivana *Schiff.* (Vol. 3, p. 280, pl. 52 e). — **nigrosarsata** *Osth.* are specimens in which the silvery white bands are heavily suffused with black. — **nowickii** *Schille* is only blackish yellow-brown in basal and central areas, marginal area glossy silvery white like on the transverse bands, only dusted with blackish brown between the veins. Described from Poland (Strzalkow). — **funeraria** (*Pglr.* i. l.) *f. n.* (23 b) are still darker specimens in which the silvery white stripes appear leaden black from the olive-brown ground colour, or even are completely obliterated: — **uniformis** *f. n.* (23 b) in which all markings become invisible, except for a very fine white subapical oblique streak and indications of a whitish submarginal line. Both forms have been obtained at Aksu. — **albescens** *f. n.* (23 b) also differs vastly from type, basal and marginal thirds are almost pure white, so that the silvery white transverse lines almost disappear therein and only an oblique pale brownish central band remains. From Altyn tagh. *nigrosarsata*, *nowickii*, *funeraria*, *uniformis*, *albescens*.

E. candidula *Schiff.* (Vol. 3, p. 281, pl. 52 f). — **incommoda** *Krnl.* appears to be a smaller 2nd generation White ground colour without reddish tone and powdered with grey, the black markings darker and more extensive, also hindwings are darker. Described from Wiatka and Kasan. *incommoda*.

29a. Genus: **Outaya** Chrét.

The ♂ antennae are ciliate, those of ♀ filiform with a few cilia towards tip and with a brush of hairs at base. Palpi porrect with short terminal joint. Forewings wide with straight costa, slightly rounded at apex. Outer margin oblique, rounded at inner angle. On forewings veins 7, 8 and 9 stalked, without areola. On hindwings veins 6 and 7 stalked, 3 and 4 arise from lower angle. Only 1 species:

grisescens.

O. grisescens Chrét. Forewings with wide bluish or brownish ashen grey scales, intermixed with white. There are 2 indistinct yellowish white transverse lines with black-brown and reddish ochre edges. The posterior transverse line with a bend on the fold and having there a whitish streak posteriorly. A yellowish white elliptical spot with black-brown circumscription in disc. Subterminal area is dusky with a pale subterminal line, which is however almost obsolete. Fringes with dark grey base, white outwardly and with grey and brown checks. Hindwings yellowish brown, with faint violet sheen, darker brown in marginal area. Fringes white with brown basal line. From Gafsa, in May.

30. Genus: **Eulocastra** Btlr.*capnoëssa.*

E. capnoëssa Zerny is most closely related to *bipartita* H.-S. (Vol. 3, p. 282, pl. 52 g) and only differs from same by the absence of the silvery line in marginal area. Length of forewing: 10 mm. Transcaspia.

latifasciata.

E. latifasciata Wilem. Forewings sooty brownish with wide pale yellow band anterior to centre and which contracts towards the costa. Before and beyond same there are blackish dots in cell and a yellowish costal spot in apical third having indications of an irregular yellowish band between it and the inner margin. Hindwings black-brown with darker discal dot. Wing expanse: 19 mm. Japan (Hondo).

35a. Genus: **Gerarctia** Hmps.

This remarkable Genus that was originally described as an *Arctiid* should be classified here in preference near *Nothosterrha* (Vol. 3, p. 283). Proboscis well developed, the short palpi erect. Frons with rounded protuberance. Antennae of ♂ with short bipectinations, of ♀ with fascicles of cilia. Abdomen long and sleek. Forewings long and narrow, with elongated cell, from the lower angle of which vein 4 arises; 3 and 5 in equidistant intervals close thereto; 6 from below the upper angle; 7 from the angle; 8 and 9 are stalked; 10 and 11 from the cell. On hindwings veins 3 and 4 with long stalk; 8 from centre of cell. Only one small species, that looks like a *Pyrallid*:

poliotis.

G. poliotis Hmps. (23 b). Body grey interspersed with brownish black, the ashen grey forewings similarly intermixed, the veins with faintly darker striations. Anterior transverse line very oblique, beyond same the central area is somewhat darker brownish black with slightly darker streak on submedian fold and small discal lunule. Posterior transverse line whitish with darker striations on veins anteriorly below costa and in centre. The apex is subdivided by a faint oblique streak, black dots on the margin. Hindwings grey with dark marginal line and paler fringes. Wing expanse: ♂ 21.5, ♀ 30 mm. Canary Isles (Teneriffe).

36a. Genus: **Sinocharis** Pglr.

Proboscis well developed. Palpi short, upcurved, the central segment densely scaled. Frons smooth, antennae filiform, not ciliate. Thorax covered with wide flat scales, the flat abdomen without crests and with short hairs. Forewings with somewhat rounded apex. Neuration very similar to *Eulocastra*, from which it only differs by the much heavier build, shorter palpi and flat abdomen. MATSUMURA created the Genus: *Noshimea* for a very similar species and the name should be considered a synonym.

Type: *S. korbae* Pglr.

korbae.

S. korbae Pglr. (23 b). Head dark brown, thorax paler brownish yellow, abdomen grey-white turning to black-brown at tip on upperside. Legs brown, ringed with white, underside of thorax white. Forewings snow-white with black-brown basal area that is somewhat incurved distally and which is permeated with bluish silvery white scales. Marginal area black-brown with bluish silvery marginal line having a few similar striations anteriorly. The white central area is suffused with brownish and projects somewhat towards the centre of margin. Hindwings white with narrow brown apex. Wing expanse: 33 mm. Bred from a larva that was coloured and variegated with spots like a *Cucullia* larva. It was found feeding on a Dahlia and pupated between moss and earth in a slight cocoon. Ussuri (Kasakewitsh).

fulgularis.

S. fulgularis Mats. is very close to *korbae* and differs by the much greater size (42 mm). Thorax grey-white with pinky reddish hue, segments 2—5 of abdomen are black-brown. Wing contour is more elongate and apex protracted. Forewings grey-white with a faint rosy sheen in certain light; basal and marginal

area very similar to *korbae*, dusky brown with delicate bluish white dentate line therein, but the inner marginal part of basal area and the anal area of outer margin are grey, instead of black-brown. Japan (Honsho), only one ♀ captured on a willow twig.

36 b. Genus: **Lena** Herz.

A Genus that was omitted from the Main Volume. They are small *Noctuids*, similar to *Erastria*, with short, densely haired palpi and scarcely apparent terminal segment; proboscis short. Antennae with pyramid shaped serrations and short fascicles of cilia. Thorax wide with woolly hairs, abdomen short and stout. Wings very similar to those of *Erastria* and the neuration — which was not described in the original diagnosis — seems to tally. Only 1 species:

L. poppiusi Herz (23 b). Forewings grey-black, both stigmata with grey-white centres. Black cuneiform marks internervally at outer margin, both transverse bands black, dentate, with white edges on averted sides. Fringes with black and white checks. Hindwings impure grey-white, a darker band at outer margin, with discal spot and blackish dentate band posterior to centre. Wing expanse: 22 mm. From Shigansk in the Lena territory.

36 c. Genus: **Hyptioxesta** Rbl.

This was also omitted from the Main Volume and is very close to *Erastria*, from which it differs by the absence of the dorsal tufts on the abdomen, further by the posterior tibiae, which are somewhat expanded as if inflated and have rather bolder spurs than in *Erastria*. It has no connection with the North American Genus *Leptina* *G. L. G.*, to which HERZ classified the only species; it is certainly a triline *Noctua*.

H. penthima Ersch. (23 c) closely resembles *L. poppiusi*. It is a small *Noctuid* of *Erastria*-like appearance. Head and palpi grey, thorax and forewings sooty black. The subbasal line is somewhat paler, whitish and with two dentations. Both wide white transverse lines are sharply dentate, the posterior one extending boldly outward on veins 2—4. A subterminal line is only indicated on costa, where just prior to apex there is a whitish oblique streak. There are white dots on the veins at margin anterior to the white and black checked fringes. Hindwings glossy brownish grey with indistinct whitish undulate postmedian band. The whitish fringes are checked with black-grey at the terminals of the veins. East Siberia. We are illustrating a specimen from the Amur.

37. Genus: **Erastria** Tr.

E. trabealis Scop. (Vol. 3, p. 283, pl. 52 g). A few aberrative forms have been described. — **confluens** *Strd.* has confluent yellow spots. — **crassistriga** *Strd.* The yellow streak between the two black longitudinal streaks is filled with black. — **nigricostata** *Strd.* has a wide black costa. — **sheljuzhkoi** *Strd.* The dark markings are not black, but grey-brown, all very delicate and narrow, the yellow a glossy straw-yellow. Hindwings as pale as in *flavonitens* *Aust.* From western Asia. — **unculata** *Dhl.* has the black markings so merged, that with the exception of the wide outer transverse line only a short submarginal line is discernible, all the black markings being confluent form a wide black patch along the costa, with a second one along the median nervure, between the two are only fine yellow lines. Perhaps it is identical with *crassistriga*, which can then claim the right of priority. S. Tyrol.

E. deleta *Stgr.* (Vol. 3, p. 284, pl. 52 g) with its forms, is probably only a form of *trabealis*, but this must still be definitely ascertained by an examination of the genitalia. Many specimens, which are named — **parallela** *Rothsch.* are extraordinarily like the european type of *trabealis*. These occur particularly in W. Algeria and Morocco. — **olivina** *Rothsch.* denotes specimens in which the black is replaced by olive. and Morocco, from March till August.

E. viridisquama *Guen.* (Vol. 3, p. 284, pl. 52 h). — **obscura** *Warr.* with which *obscurior* *Strd.* is synonymous, is illustrated afresh here (23 c) as the illustration of the type was unrecognisable.

38. Genus: **Tarache** Hbn.

T. olivacea *Hmps.* (Vol. 3, p. 285, pl. 52 h). — **umbrosa** *O. B.-H.* has the two large olive-brown patches of forewings confluent, so that the entire forewings are olive-brown with the exception of the silvery white costal streak, with a distinct black central spot. S. Ussuri, Vladivostok in July.

T. lucida *Hufn.* (Vol. 3, p. 285, pl. 52 i). — **heliodora** *Schaw.* is an extreme white and small form, the yellowish central band is completely devoid of the accompanying black dots, only 2—3 brown specks are retained. Anterior to the margin are only vestiges of a dark brown band. The white fringes are slightly brownish only towards the apex. Hindwings pure white with traces of a fine brown marginal line. Wing expanse: 18 mm. From Mosul in June. — **mediofasciata** *Strd.* from Pola has a completely unattached central band.

yemenensis.

T. yemenensis *Hmps.* Head and thorax yellowish white, abdomen pale reddish brown. Forewings white, partially diffused with brown, especially in and posterior to cell. Olive-grey spots on costa, anterior and posterior to centre, an anterior grey transverse line is indicated. Posterior to centre, there is an olive-grey band from vein 6 to the inner margin with an indistinct double black posterior transverse line therein. This is interfilled with white towards the inner margin and has a white outer edge. The apical area is dark brown turning to pale coppery red towards the tip. The subterminal is a bright coppery red. Hindwings white, margin dusky coppery brown. Wing expanse: 36 mm. Yemen, Arabia, probably also occurring in the palaearctic region.

biskrensis.

T. biskrensis *Obth.* (Vol. 3, p. 286, pl. 52 k). The illustration was poor, we are giving a better one here (23 e).

Subfamily: **Eutelianae**.

1. Genus: **Eutelia** *Hbn.*

sinuosa.

E. sinuosa *Moore* (= *viridinota* *Swinh.*). This species, which occurs from Sikkim to Borneo, is also found in Japan. Forewings deep brown with blue-grey hue. The black transverse lines dentate, the posterior line is double. Before the latter a green, sharply circumscribed and constricted, reniform stigma. Subterminal line is black outlined in white on both sides but only partially present. Fringes whitish between veins 5 and 7. Hindwings dark brown with whitish base and with black and white markings at inner margin. Wing expanse: 30 to 34 mm.

grabczewskii.

E. grabczewskii *Pglr.* (Vol. 3, p. 288, pl. 53 a). The illustration is an unrecognisable copy from HAMPSON. We are giving a better illustration here (23 c).

2. Genus: **Anuga** *Guen.*

pygatula.

A. multiplicans *Wkr.* (Vol. 3, p. 288, pl. 53 a). — **pygatula** *Strd.* has only a faint and diffuse paler patch at anal angle of hindwings. — **subanalis** *Strd.* has a whitish distinct anal spot at anal angle in place of the usual ochreous spot. From China.

Subfamily: **Sarrothripinae**.

1. Genus: **Sarrothripus** *Curt.*

columbana.

S. revayana *Scop.* (Vol. 3, p. 290, pl. 53 c). — **columbana** *Turn.* denotes a dove-grey form that is almost devoid of markings. Described from England, but a number of similar specimens are known from Asia Minor.

3. Genus: **Lamprothripa** *Hmps.*

lactaria.

L. lactaria *Graes.* (= *korbi* *Pglr.*) can now be illustrated (23 b). PÜNGELER had classified this interesting small species in the Genus *Asinduma* *Wkr.*, which is closely related with *Lamprothripa*, but the foretibiae have shorter hairs.

7. Genus: **Blenina** *Wkr.*

quinariodes.

B. quinaria *Moore* (Vol. 3, p. 293, pl. 53 e, f). — **quinariodes** *Strd.* has less green beyond the median line on forewings and the postmedian whitish patch is not quadrate, but extended to the point where the oblique band and subterminal line meet. China.

8. Genus: **Risoba** *Mr.*

obstructa.

R. obstructa *Mr.* was omitted from Vol. 3, but occurs in Japan and China and besides is distributed from East Africa via India to Java. Forewings whitish, peppered with brown and black, with a large white spot before the centre from base of costa to the inner margin and which is edged by a black undulate line. Orbicular stigma is a black dot, reniform stigma circumscribed by black and with a black dot in centre. The posterior transverse line is double with a white inner edge. Subterminal line with white outer edge. Hindwings white with dusky marginal band. Wing expanse: 26—36 mm.

rufialbivertex
alata.

R. prominens *Mr.* (Vol. 3, p. 293, pl. 53 b, c). — **rufialbivertex** *Strd.* has head, thorax and base of abdomen white with red-brownish tone. — **alata** *Strd.* has brown instead of green suffused forewings and also beyond the subterminal line there are red-brown markings. China.

Subfamily: Acontianae.

5. Genus: **Tyana** Wkr.

T. falcata Wkr. (Vol. 3, p. 295, pl. 53 h). — *walkeri* Strd. has the back of the head and scapulae coloured yellow, whilst costa of forewings is yellow-white. W. China. *walkeri*.

6. Genus: **Earias** Hbn.

E. albovenosana Obth. is related to *vernana*. Forewings delicate green with a curved very fine double darker green postmedian that is interfilled with white. Costa and base of inner margin are white, the area before the posterior transverse line is dotted and striated with darker green. Hindwings silvery white and silky. Underside of forewings pale green with white veins and postmedian. A very delicate and easily damaged species from Algeria (Lambessa, Sebdou, Batna). *albovenosana*.

E. chlorophyllana Stgr. (Vol. 3, p. 296). — *roseana* Shelj. is placed by the author to *turana* Gr. Gr. which WARREN had held to be synonymous (vide Main Volume), but which is quite possibly correctly deemed to be a genuine species. Wing contour as in *chlorana*, short and wide. Head white, thorax terracotta-red like the forewings. Abdomen white, somewhat reddish at tip. Costa of forewings white, marginal area inclined to brown, a row of black dots on margin and a very indistinct discal spot. There are 2 transverse lines, a central and postmedian one, which are similarly drawn to those of *insulana*, but are distincter and not so close together. Hindwings pure white, the upper $\frac{2}{3}$ rds of the outer margin orange-yellow, fringes white. Length of forewings: 9 mm. Amu-darka (Dargan-ata). *roseana*.

E. vernana Hbn. (Vol. 3, p. 296, pl. 53 h). — *caeruleoviridis* Strd. has forewings and thorax inclined to blue-greenish. *caeruleoviridis*.

E. roseifera Btlr. (Vol. 3, p. 296, pl. 53 i) is held by FILIPJEV to be a genuine species and this is probably correct. — *erubescens* Stgr. is not synonymous with it. It is impossible at present to decide to which of these, the following 3 forms belong. They were mentioned by HAMPSON, and have now been denominated by STRAND: — *discoidalis* Strd. has a small brown discal spot on forewings. — *decarneata* Strd. has no reddish suffusion and — *dorsalis* Strd. in contrast, has the entire wing from base to margin, except for the inner marginal area, suffused with red. E. Asia. *roseifera*, *erubescens*, *discoidalis*, *decarneata*, *dorsalis*.

E. syrticola Trti. is smaller than the subsequent *insulana*, outer margin of forewings is more oblique. Forewings devoid of markings, intensively dull green without transverse markings. Costa is yellowish white, fringes green. Hindwings glossily pure white. Underside of forewings rosy white with green fringes, hindwings irisating white. Legs white. Wing expanse: 17 mm. Cyrenaica (Agedabia). *syrticola*.

E. insulana Bsdv. (Vol. 3, p. 296, pl. 53 i). — *rufovitta* Strd. resembles *semifascia* Warr., but the oblique band is intensively red-brown between vein 6 and the inner margin. Tips of fringes are similarly coloured. This is the ab. 4 of HAMPSON, WARREN had expressly combined ab. 3 (= *semifascia*) with ab. 4, which is perhaps better, than creating a fresh name. *rufovitta*.

7. Genus: **Hylophila** Hbn.

H. prasinana L. (Vol. 3, p. 297, pl. 53 k). — *albidula* Strd. are ♀♀ that are almost a bleached white. — *dorsilutea* Strd. have an extensive yellow inner margin to forewings, the red colouration is absent from the costa towards apex. — *hispanica* Fdz. recently described, is probably a form of the following species: *fiorii*. As in *hongarica* only 2 white transverse lines are present. Costa is not red in ♂, fringes of hindwings are pure white. In the ♀ the costa is not white but only somewhat paler green, inner margin is also green. Béjar (Salamanca). *albidula*, *dorsilutea*, *hispanica*.

H. fiorii Costni. is smaller than *prasinana*, ♂ leaf-green, faintly and uniformly suffused, ♀ paler and inclined to emerald green, with 2 oblique white lines, narrower than in *prasinana*, the inner one particularly oblique and not quite complete. Fringes of forewings, in the ♂ also those of the hindwings, reddish or blackish interrupted at terminals of veins. Hindwings in ♂ golden yellow, white in ♀. Antennae and tibiae yellow-red. Palpi rather more projecting than in *prasinana*. Wing expanse: 29—30 mm. Upper Italy. In all probability this is identical with *hongarica* Warr. (Vol. 3, p. 297, pl. 53 k) and possibly conspecific with *hispanica* Fdz. *fiorii* has the right of priority (having been described in 1911), but it is possible that *hongarica* and *hispanica* may be retained as denominations of races, even though the differences are negligible. *fiorii*.

8. Genus: **Hylophilina** Warr.

H. bicolorana Fuessl. (Vol. 3, p. 297, pl. 53 m). — *intersectana* Costni. is a very small form, probably a 2nd generation, with reddish and white checked, not pure white, fringes. Occurs in August and September in Upper Italy. *intersectana*.

14. Genus: **Gelastocera** Btlr.

duplicata. **G. duplicata** Wilém. has pale rosy brown forewings suffused with grey, the central area is intersected by an oblique, double, brown band. Costa has a short brown streak-like mark near the apex. Hindwings blackish brown turning to a paler ochreous outwardly. Wing expanse: 38 mm. Hondo, Yezo.

insignata. **G. insignata** Wilém. Forewings pale brown, mottled with darker specks, anterior and posterior transverse lines indicated by black dots with a darker undulate line subterminally. Reniform stigma pale with 2 black dots. Black dots at outer margin and a small spot in centre of inner margin. Hindwings blackish brown. Wing expanse: 20—26 mm. Japan, Shikoku and Kyushu.

16. Genus: **Kerala** Moore.

houlberti. **K. houlberti** Obth. Forewings glossily silky reddish brown bestrewn with black dots, especially on costa. Anterior transverse line dark brown, angulated. The posterior line is double and only slightly curved. Orbicular and reniform stigmata are very small, whitish. Beyond the subterminal line, there is a row of black longitudinal streaks. The brown marginal area is narrow. Hindwings glossily silky, impure white with a large brown basal spot, in the ♀ the subterminal area is dusted with grey. It is related to *punctilineata* Mr. from Assam and Sikkim. Wing expanse: 38—42 mm. Thibet (Siao-loo, Ta-t sien-loo).

Subfamily: **Catocalinae**.1. Genus: **Mormonia** Hbn.

dulana. **M. dula** Brem. (Vol. 3, p. 302, pl. 54 b). — **dulana** Strd. denominates specimens in which the whitish central area colouration is quite absent. Such forms, however, belong to the typical form and should not be denominated. The remark of STRAND, that the hindtibiae only have spurs towards the base, certainly does not refer solely to the form *dulana*, but to *dula* in general.

demaculata. **M. sponsa** L. (Vol. 3, p. 302, pl. 54 b). — **demaculata** Heinr. has stigmata suffused with the ground colour and not filled with white. Described from the neighbourhood of Berlin, but probably occurring occasionally everywhere. — **fortis** Schaw. are specimens heavily suffused with black-brown, base, central and marginal areas appearing thus, only the stigmata and their surrounds remaining pale. The band of the hindwings more widely black. Bosnia. — **obscura** Obth. are very dark specimens without any white and partially submerged markings. Algeria and Tunis. SCHAWERDA has described similar specimens a second time 3 years later under the same name, as occurring in Lower Austria. — **atra** Spul. are still darker, forewings and thorax are completely blackened. — **pomerana** Diesterweg denotes a melanic specimen with black hindwings and only the reniform stigma of forewings is faintly discernible and grey. — **purpurea** Obth. from Morocco is darker and with more intensive colouration and markings, hindwings being very dark.

syriaca. **M. neonympha** Esp. (Vol. 3, p. 303, pl. 54 c). — **syriaca** Osth. is larger, forewings not ashen grey, but golden yellow, all transverse markings fainter and more diffuse. Marash (Taurus).

bellioides. **M. bella** Btlr. (Vol. 3, p. 303, pl. 54 f). — **bellioides** Strd. is identical with STAUDINGER's *serenides*, which is distinguished by darker forewings that are less shaded with grey. It is therefore a synonym.

2. Genus: **Catocala** Schrk.

atra. **C. fraxini** L. (Vol. 3, p. 304, pl. 54 d). — **atra** Spul. are extreme *moerens* with completely blackened forewings and thorax. — **caerulescens** Closs has forewings distinctly suffused with bluish, perhaps it is a transition to *moerens*. — **contigua** Schultz has a synonym in *longimaculata* Closs. — **coeruleomaculata** Closs is a remarkable aberration with a blue patch in the black basal area of hindwings, otherwise it resembles the form *moerens*. Captured near Berlin. This may be an extreme form of *maculata* Kusnezov. — **argillacea** Vincent has forewings grey-white as type, the black markings faintly indicated, but the transverse lines pale yellow, edged with black on both sides. The spot below the reniform stigma is also yellow. From Budapest and La Grange. — **latefasciata** Warn. is a form from the Amur, in which the blue bands of the hindwings are strikingly wide, being about 2 mm wider than in European specimens. There is no other difference. Ussuri. — **sternecki** Hirschke denotes a specimen bred at Prague, in which the blue band of the hindwings is double as wide as in normal specimens, it almost reaches to the inner margin and only a small black patch is left in basal area. Forewings do not vary.

C. nozawae Mats. is said to resemble *lara*. Forewings grey with brown scales, inner line undulate, not very oblique, about as in *puerpera*. Central line parallel to the inner one, more boldly dentate at inner margin. Postmedian boldly dentate over the inner margin, but without the long dentation on vein 2 as in *lara*. The subterminal as in *lara*. Central area dark brown, so that the central line and reniform stigma are submerged. Hindwings yellowish white, the bands as in *puerpera*. Wing expanse: 70 mm. Hokkaido.

C. nupta L. (Vol. 3, p. 304, pl. 55 a). — **grisescens** Hannemann are monotonously brownish grey specimens with diffuse markings. — **nigrescens** Hannemann are duskier grey-black specimens with darker markings and no paler patches. Both described from the neighbourhood of Berlin and not deserving denomination. — **xanthophaea** Schaw. has brownish yellow hindwings, while *flava* has pure yellow, *languescens* whitish yellow with rosy suffusion. From Klosterneuburg near Vienna. — **guiartii** Lamb. is probably very similar to *coerulescens* Cockerell, it has hindwings suffused with bluish black, whilst in *coerulescens* they are dark brown with violet sheen. Described from specimens captured in Belgium. — **kansuensis** O. B.-H. has pale grey forewings with very indistinct markings, in the ♀ blue-grey with white patch below the reniform stigma, which is connected to the outer transverse stripe by a ribboned band. Hindwings pale red with abbreviated narrower central band. From the Riehthofen mountains (N. Kansu) in July, at an altitude of 2500 m. — **clara** Osth. is a larger form with much paler, pure pale grey forewings that are more faintly dusted, so that the 2 black transverse lines stand out sharply. The central area round the reniform stigma towards the costa is more heavily dusky blackish, the whitish patch before the reniform stigma is remarkably large, pale and prominent. Hindwings are paler red with a narrower black band than main type form. From Marash (Taurus).

C. afghana Swinh. (Vol. 3, p. 305). — **kaschmirensis** Strd. has head, thorax and forewings dark grey, with scarcely a trace of brown, but much more heavily peppered with black. Kashmir.

C. deducta Ev. (Vol. 3, p. 306) was not illustrated in the Main Volume. An illustration is now given (23 d). — **uralensis** Spul. is, as SPULER quite correctly asserted in 1908, not the type of EVERSMANN, but the darker, usual form, described in the Main Volume as *deducta*, *deducta* itself actually being a very pale, creamy white form, the name *innocens* Spul. (= *uralensis* Strd. nec Spul.) is therefore withdrawn.

C. oberthurii Aust. (Vol. 3, p. 306, pl. 55 c). — **flavicans** Obth. have very pale hindwings, inclining to yellowish. — **haroldiana** Obth. is without the more or less pronounced black marginal band to hindwings. — **erubescens** Rothsch. are specimens with heavy reddish suffusion; from Algeria. As the genitalia of *oberthurii* are identical with those of *elocata*, this is probably only a subspecies.

C. adultera Mén. (Vol. 3, p. 306, pl. 55 d). — **fumosa** Vincent are dusky specimens with the whitish ground barely visible. Amur territory (Kasakewitsh).

C. puerpera Giorn. (Vol. 3, p. 307, pl. 55 c). — **roseolimbata** Dhl. has red lunular or triangular spots in the black marginal band of hindwings. They may expand to cover the entire outer half of the band with red, the band being in such a case widely interrupted by red at anal angle. The form has dark, boldly marked forewings. S. Tyrol. — **diniensis** Heinr. is close to *romana* Schultz, the forewings being the same yellow-grey shade as the body. From Digne. — **lutescens** Vorbr. is a specimen bred at Martigny with completely dull yellow wings.

C. promissa Esp. (Vol. 3, p. 308, pl. 56 a). — **sponsoides** Closs is a doubtful specimen, being perhaps a hybrid of *promissa* and *sponsa* (?). The central band of hindwings is angulated as in *sponsa* and extends to hind margin. From the neighbourhood of Berlin. — **hilaris** Obth. (= *electra* B.-H.) is very pale, heavily admixed with white. From Algeria.

C. kotschubeyi Shelj. is nearest to *conjuncta* Esp. (Vol. 3, p. 308, pl. 56 a). Forewings unicoloured dark black-brown without pale bands or else with these merely indicated as pale shades. The transverse lines as in *conjuncta*, but much more delicate. The black longitudinal basal streak is entirely absent. The pale subterminal barely indicated. The pale brown reniform stigma with its dark centre is much smaller and darker than in *conjuncta* and without the black edge. Below it there is a small pale brown spot with black circumscription, which is open outwardly. Fringes black-brown. Hindwings cinnamon red, a deeper shade than in *conjuncta*. The curved central band is fairly wide and extends from costa to inner margin, being slightly narrower at upper end. Marginal band uniformly wide, only slightly narrower at anal angle. Inner margin black-brown and intensively hairy, with a pale yellowish spot subapically at outer margin. Fringes black-brown with somewhat yellowish patches. Length of forewings: 22—23 mm. From Sutshan (S. Ussuri).

C. fugitiva Warr. seems nearest to *timur* B.-H. Forewings grey with olive-brown tone, a delicate sub-basal line that extends obliquely below the centre. Antemedian is oblique, excurved above and below the centre and dentated inwards on median and vein 1. It is separated by a narrow pale area from a nebulous olive-brown patch that lies anteriorly. A black basal streak is present. The black outer line, as in *timur*. The reniform stigma is shaded over by olive-brown, it has a pale ring with black circumscription. The pale dentate

subterminal is edged by a distinct black zigzag line. There is a dark oblique streak below the apex. Hindwings fairly pale red, the black marginal band is dentated inwards on vein 2 and at submedian is almost completely interrupted by red. Apex and fringes white. The central band gradually contracts from costa to vein 1, it is never angulated. Wing expanse: 60 mm. Baigacum (Syr Darja), June. It differs from *timur* by the black basal streak and the curved narrow central band of hindwings.

- sultana*. **C. sultana** B.-H. (Vol. 3, p. 310, pl. 56 c) should be deleted, it is identical with *optata selecta* Bsdv. (Vol. 3, p. 310).
- lucasi*. *C. optata* God. (Vol. 3, p. 310, pl. 56 e). — **lucasi** Vincent, described from France, resembles *selecta* and has abdomen suffused with red. It is not so large, markings are less definite and the carmine red is not so vivid.
- deserta*. *C. pacta* L. (Vol. 3, p. 310, pl. 54 f). — **deserta** Kozh. differs from the typical *pacta* by its larger size (50—52 mm) and brown instead of black markings. The reniform stigma is also brown. From Minussinsk.
- kusnezovi*. **C. kusnezovi** Pglr. is closely related to *optima* (Vol. 3, p. 309, pl. 56 b), differing by the obtusely dentate postmedian that extends in an acute angle at top towards the margin, forming a large flat curve towards the base. Over the inner margin it again forms an acute angle towards the base. It is smaller than *optima*, with purer darker grey forewings and deeper red hindwings. It is also somewhat like *timur*, but more of a brownish grey and hindwings are a paler brick-red colour. Wing expanse: 46 mm. Syr Darja (Baigacum); Kuldja.
- kuangtungensis*. **C. kuangtungensis** Mell on the upperside of forewings resembles *deuteronympha*, dark olive, darker than in *pataloides*, the 5 pale spots on costa, dusted with black. The arched central pale band is the more distinct of the two, it is conjoined with the whitish spot below the reniform stigma, but does not extend to the inner margin. The pale postmedian streak is only distinct at costa. Hindwings yellow, the black "O" shaped band only touches in its inner part, the end of the long submarginal band. A black submarginal spot faintly conjoined by dark scales at the anal angle to the long anterior part of the submarginal band and the inner edge of the "O" shaped band. Length of forewings: 31.4 mm. N. Kwangtung.
- greyi*. *C. deuteronympha* Stgr. (Vol. 3, p. 311, pl. 63 c). — **greyi** Stgr. is not synonymous, but a form that
- omphale*. has considerably wider bands on hindwings. Ussuri, Sutshansk. — **omphale** Btlr. (Vol. 3, p. 311, pl. 63 e) is also merely a form with almost completely black hindwings on which only a narrow vestige of yellow is
- tschiliensis*. retained. This is the Japanese form. — **tschiliensis** O. B.-H. in contrast to the preceding form has a much narrower central black band to hindwings. Forewings dark grey with an oblique pale central band. From the Chingan mountains (Chibli).
- thomsoni*. **C. thomsoni** A. E. Prout is very similar to *deuteronympha*, but has shorter and wider forewings. The dark marking on vein 5 beyond the reniform stigma is more extended. The dark shading posterior to the postmedian is absent. Postmedian and subterminal more heavily edged outwardly with ochreous. Central band of hindwings is much narrower and the marginal band is similarly contracted at terminals of radial nervules. Anal fold has scarcely any or no dark hairs. The last segment of palpi is distinctly shorter and also thicker and blunter than in *deuteronympha*. Wing expanse: 56—63 mm. Tientsin, N. China in June.
- moltrechti*. **C. moltrechti** O. B.-H. is close to *proxeneta* Alph. (erroneously printed as "*proxenes*" in Vol. 3, pl. 63 c). Ground colour of forewings brownish with a tinge of violet. Basal area almost black, a distinct small ringlet below the reniform stigma, whilst in *proxeneta* this is a diffuse pale patch. A dark triangular patch in the centre of inner margin, touching the basal area. Hindwings with a small isolated central spot and a wide, slightly curved central band, parallel to the marginal band. Wing expanse: 40 mm. S. Ussuri, Sutshansk in July.
- pataloides*. **C. pataloides** Mell. The hindwings remind one most of *patala* (Vol. 3, p. 312, pl. 56 d) but the forewings are quite different. The apex is more pointed, the entire wing narrower, with mossy green scales, greenish grey-brown transverse bands. Small pale spots on costa, of which 2 at base and 3 between centre and apex are longer. The dark anterior transverse line is equidistant from base on costa and at inner margin. Reniform stigma is obsolete, below it there is a roundish oval pale yellow or brownish spot. The dark postmedian is indistinct and only slightly dentate, only behind the cell is there a dentation projecting outwards. Hindwings yellow as in *patala*, but the black is more extensive. In the marginal area there is a roundish apical yellow spot, with similar but narrower elongate spots in the pre-anal and anal regions. A longish yellow costal spot from the yellow postmedian band and 3 roundish yellow spots in the posterior half of the wing. In the basal area there are yellow longitudinal streaks in the median and anal areas, the latter being narrower. Length of forewings: 30—32.3 mm. N. Kwangtung in subtropical forests. It rests on the tree trunks with its head downwards.
- vallantini*. *C. nymphagoga* Esp. (Vol. 3, p. 312, pl. 56 f). — **vallantini** Obth. and as a synonym: — *defasciata* Stertz. OBERTHÜR claims specific rank for his *vallantini*, but it is certainly only a subspecies, which is connected with
- leucomelas*. the very variable *nymphagoga* by all grades of transition. — **leucomelas** Obth. are very dark, almost black
- obscura*. specimens with white subterminal bands. From N. Tunis. — **obscura** Dhl. comes between *fasciata* and *anthracita*; the ground colour is deeper, the pale patches being uniformly duskily suffused, but the basal area is pale grey and the marking of the lines is distinct. The type comes from Torbole.

3. Genus: **Ephesia** Hbn.

E. helena Ev. (Vol. 3, p. 314, pl. 57 a). — **kurenzovi** Moltr. is a small dark race; ground colour blue-grey. Basal area with dense black shade, the outer dentate line deep black with brown edge. The dentation of the outer dentate line is very long and extends into the grey-white central band. Hindwings dark yellow. S. Ussuri, Sutshansk. *kurenzovi*.

E. nymphaea Esp. (Vol. 3, p. 316, pl. 57 a, b). — **amaura** Dhl. has no white spot below reniform stigma, nor pale patch over cell. Torbole. — **fuliginata** Dhl. denotes dusky specimens with brownish black forewings, distinct lines and sharply outstanding white central spot. — **subfusca** Dhl. has yellow hindwings shaded by brown, forewings also darker. — **caerulescens** Dhl. has paler coloured and marked forewings dusted with bluish, brown patches extinct. — **connexa** Dhl. marginal band of hindwings extends uninterrupted to anal angle. — **storthynx** Dhl. has marginal band of hindwings intersected by yellow lines along the veins forming narrow longitudinal oval patches. — **benacensis** Rocci resembles *thalamos*, large, very dark grey, reniform stigma very duskily suffused but with whitish spots on both sides. Hindwings with wide complete marginal band. Campione. — **kabuli** O. B.-H. has ashen grey forewings and faint barely discernible markings. Hindwings pale yellow, the black central band extends to anal angle in a sharp point. Underside monotonous yellow. Afghanistan, Kabul. *amaura*, *fuliginata*, *subfusca*, *caerulescens*, *connexa*, *storthynx*, *benacensis*, *kabuli*.

E. suzukii Mats. The generic classification is doubtful, it may be an *Ephesia*. Forewings grey-white with bluish tone, reniform stigma and a spot below same, deep black. Inner line black, bold, undulate, similar to *nymphaea*, but more vertical. The outer line also like that of *nymphaea* and dentate. Subterminal shadow-like, uniformly undulate from costa to inner margin. Hindwings orange-yellow, the black marginal band wide at costa, contracting towards inner margin, somewhat as in *duplicata* (Vol. 3, pl. 63 g). Central band also similarly curved, but extending more towards base at inner margin. Central streak longer. Thorax grey, abdomen yellow-grey. Wing expanse: 48 mm. Kyoto. *suzukii*.

E. danilovi O. B.-H. is best placed next to *connexa* Butl. (Vol. 3, p. 317, pl. 57 f). Head and thorax bluish grey, with a striking brown tuft of hair on metathorax. Forewings bluish grey in central area, marginal area somewhat darker, the still darker basal area boldly marked. The striking inner transverse line is black, reniform stigma only faintly indicated, the outer black transverse stripe has a whitish outer edge. It commences just below costa, extends somewhat towards the margin forming two dentations and then in 5 dentations vertically to inner margin, parallel to inner line. Hindwings yellow, similarly marked to *connexa* with wide marginal band that is interrupted at anal angle. Cell is circumscribed by black and there is a faint black inner marginal streak. Wing expanse: 43 mm. S. Ussuri, Sutshansk, July. *danilovi*.

E. nubila Btlr. (Vol. 3, p. 318, pl. 57 c). — **fuscipicta** Strd. (= *Hmps.* ab. 1) is the form with dark brown central area. — **medionigra** Warr. has — *nigripicta* Strd. as synonym. *fuscipicta*, *medionigra*.

E. jansseni A. E. Prout differs from *triphaenoides* Obth. (Vol. 3, p. 318, pl. 63 g) by the more oblique direction of the antemedian with dark shading proximally. Postmedian more sharply dentate, the upper extremity is submerged by a large dark dusted costal spot, which extends from $\frac{2}{5}$ to $\frac{4}{5}$ ths of costa and downwards to centre of wing, with long black dentations outwardly on the veins. Subterminal is also heavily and sharply dentate. Forewings with small black costal spots in centre and black narrow marginal band to shortly before vein 2 and with a "V" shaped spot before anal angle. Wing expanse: 58 mm. One ♀ from Ichang (Central China). *jansseni*.

E. duplicata Btlr. (Vol. 3, p. 318, pl. 63 g). — **yezoni** Strd. is a form in which the curved black-brown shade extends from centre of costa to lower angle of cell and thence to margin below the apex. Yezo, Japan. *yezoni*.

E. eutychea Tr. (Vol. 3, p. 318, pl. 57 e). — **obscura** Ostl. denotes a unicoloured grey-black, dusky specimen, with yellow patches of hindwings dusted with blackish. Marash (Taurus). *obscura*.

E. maculata Vincent appears to be close to *eutychea* and is compared to a specimen of that species with diffuse markings. Forewings blackish grey, partially dusted grey-blue; lines barely discernible, the inner one touching a large white spot, somewhat oblique, faintly dentate; the posterior one delicately black, edged with white outwardly, with a small white spot next to it on costa. Reniform stigma grey with white at lower extremity, circumscribed by black. Hindwings pale yellow with black marginal band to anal angle, very narrowly yellow in submedian fold, narrowly yellow at apex, the black central band narrow, not extending to inner margin, but curving inwards towards base. Inner margin itself slightly brownish. Wing expanse: 46—50 mm. China. *maculata*.

E. largetaui Obth. (Vol. 3, p. 319 as "largeteui", pl. 57 d). — **fuscida** Strd. has forewings completely suffused with blackish brown. China. *fuscida*.

E. fulminea Scop. (Vol. 3, p. 319, pl. 57 d). — **vilpiana** Dhl. is the large boldly marked form from the Etsch Valley. Basal area is filled with blackish, the tone of the rest of the wing inclining to grey-blue. Hindwings bright yellow with faint tinge of reddish, the black central band is confluent with the black basal marginal *vilpiana*.

stripe and the wide marginal band is not interrupted. Abdomen frequently with yellowish hairs. Probably this form is identical with HAMPSON's "ab. 3", which was briefly described as having an uninterrupted marginal band on hindwings and for which STRAND has introduced the name — **combinata**. In case this surmise is correct, the latter name would have right of priority.

hymenoides. **E. hymenoides** Draes. (23 d). Forewings yellowish grey, the transverse lines brown, the inner one proceeding obliquely from costa to inner margin, the outer one forms a sharp dentation between veins 5 and 6 with a smaller one between veins 4 and 5, then with faint dentations to inner margin, being angulated acutely inwards on vein 1. The heavily dentate subterminal line is whitish grey. Hindwings yellow, the central band dark brown, uniformly wide, extending from costa obliquely to vein 3, then curving inwards and not extending towards the base in anal area. Marginal band uniformly wide with a yellow spot in apex. Fringes yellow, faintly dotted with grey-brown on veins 2—6. Western Hills, Peking.

3 a. Genus: **Koraia** Herz.

This is very close to the american Genus *Corisce* Hbn. and only seems to differ by the shorter palpi. Only one species:

pirata. **K. pirata** Herz (23 d). Forewings bluish grey, peppered with yellow-brown, especially at outer margin. Transverse lines finely indicated, dentate, the inner one very oblique, forms a wide black-brown band from costa to below the cell, the same colour extends below the mediana in a quadrate cell spot, expanding between the stigmata and terminating in a wide costal spot. Posterior transverse line similarly expanding to a spot on costa and double. Hindwings yellowish white with very faint indications of a central band which extends towards the base on the edges of the cell. Corea and from Sutshan; July and August.

4. Genus: **Ulothrichopus** Wllgr.

The author is WALLENGREN and not WEYMER as stated in the German edition of Main Volume.

stertzi. **U. stertzi** Pgl. (Vol. 3, p. 320, pl. 63 g). A mistake was made in the list giving references to the original description. On p. 469 of Main Volume read: Iris 19, p. 225*, instead of Iris 12, p. 288 (*Cossus stertzi*).

9. Genus: **Nyetipao** Hbn.

destrigata. **N. albicinctus** Koll. (Vol. 3, p. 322, pl. 59 a). — **destrigata** Strd. There are no white streaks on veins in marginal area of hindwings. Formosa, but also found in Japan.

12. Genus: **Enmonodia** Guen.

prudencia. **E. prudens** Wkr. (Vol. 3, p. 324, pl. 59 c). — **prudencia** Strd. denotes specimens with a small dark cuneiform spot at lower angle of cell. — **grandimacula** Warr. has — **subprudens** Strd. as synonym. — **parvimacula** Warr. has — **punctimacula** Strd. as synonym. — **absentimacula** Strd. (= *Hmps.* ab. 4) has no spot at all below lower angle of cell.

13. Genus: **Speiredonia** Hbn.

signata. **Sp. martha** Btlr. (Vol. 3, p. 325, pl. 60 b). — **signata** Warr. has — **macromacula** Strd. as synonym. — *bilobata*. **bilobata** Strd. (= ab. 2 *Hmps.*) which was included by WARREN under the form *signata* (a classification which was not quite correct) has the spot posterior to lower angle of cell conjoined to form a two-lobed mark with the spot above it, the uppermost of the 3 spots remains isolated.

17. Genus: **Minucia** Moore.

privata. **M. lunaris** Schiff. (Vol. 3, p. 326, pl. 60 e). — **privata** Dhl. is the form in which the punctiform orbicular stigma is absent. — **bitincta** Dhl. has outer marginal area uniformly dusky with extinct outer transverse line, contrasting from the unicoloured pale central and basal areas. Both forms are described from the S. Tyrol. — *albilinea*. **albilinea** Wgnr. has monotonous dark brown wings. The forewings with 2 distinct white transverse lines outlining the central area. All other markings including the stigmata are extinct, only the subterminal line is faintly indicated by whitish. From Zara, Dalmatia. — *ochrea*. **ochrea** Kromb. is suffused with ochreous having faint markings, but pronounced black postdiscal band. From around Berlin.

fuscoirrorata. **M. wiskotti** Pglr. (Vol. 3, p. 327, pl. 63 g). — **fuscoirrorata** Strd. has greyer forewings, more densely peppered with reddish brown and whitish in postmedian area. — **diffusa** Strd. has anterior and posterior transverse lines extinct. Palestine.

bimaculata. **M. bimaculata** Osth. Forewings pure grey, dusted with blackish in basal and central areas. Transverse lines similarly situate as in *lunaris*. The outer one is more vertical at costa and inner margin. Reniform stigma partially filled with blackish. Subterminal line extends more straightly and is less undulate than in *lunaris*, subcostally posterior to same there are 2 velvety black spots, one above the other. Black marginal dots are barely indicated, margin and fringes less undulate. Body and hindwings unicoloured grey. Wing expanse: 40—47 mm. Taurus, Marash.

18. Genus: **Anua** Wkr.

A. tirhaca Cr. (Vol. 3, p. 327, pl. 60 f). — **jaderensis** Stdr. is synonymous with the form *absens* Warr. *jaderensis*. Black band of hindwings completely absent; forewings white or whitish grey with only sparse greenish admixture, so that they appear covered with mildew. Hindwings however deep yellow. Tivoli. Torbole.

21. Genus: **Ophiusa** O.

O. algira L. (Vol. 3, p. 329, pl. 61 b). A number of aberrations of this pretty species have been described: — **algiroides** O. Schultz has a quite dusky pale median band, whilst in — **leucotaenia** Dhl. it appears almost white, also marginal area is paler whitish. — **triquetra** Wgnr. (= *leptotaenia* Dhl.) denotes specimens with band sharply constricted or even completely interrupted in centre. — **selenitaenia** Dhl. are specimens of this latter form with a subterminal row of dark angular or crescentiform marks pointing inwards. These, connecting with the dark apical marks, form a band right across the wing, like the illustration of *albiritta* in Main Volume. pl. 61 b. All these forms are from the S. Tyrol. — **defecta** Stdr. The diffuse whitish median band on upperside of hindwings is almost or completely extinct. From Illyria (Gorizia). — **europa** Schaw. (= *algira* Warr.) is the european form, which WARREN classified with the type. This was not correct, the actual type from Syria is much larger, black-brown with pale brown, almost whitish median band: the european form is smaller, darker with a more pale mauve-grey median band and margin.

A. melicerta Drc. (= *tigrina* Fabr., *traversi* Fereday). This species, that is widely distributed in the entire indo-australian territory, extends in the west to the Persian Gulf and occurs in Japan on palaearctic ground. Forewings fuscous, dusted with grey especially in median area and on margin below apex. Dark fuscous double undulate transverse lines. Reniform stigma with black dot at top and whitish circumscription. Hindwings grey-brown to a straight bluish white band, that extends from centre of costa to anal angle, beyond this black with 3 large white marginal patches. Wing expanse: 52—70 mm. — The grey-blue larva has yellow stripes and a black dorsal stripe, flanked by reddish white spots on 4th and 5th segments. It feeds on the Castor plant (*Ricinus*).

23. Genus: **Grammodes** Guen.

G. rogenhoferi Bhtsch. (= *mirabilis* Rom., *triangulata* Swinh.) (23 e). This beautiful species was omitted from Main Volume. It cannot be confused with any other species. Forewings grey-brown with faint coppery sheen and a straight white median band, that expands at costa and inner margin and is speckled with brown in centre. A posterior white transverse line extending from costa to the white subterminal somewhat below vein 4, then becoming angulated and proceeding to inner margin close to median band. Marginal veins finely streaked with white. Also margin is narrowly white. Hindwings grey-brown with narrow, oblique white band from centre of costa to anal angle and a crenulate white line from vein 3 to anal angle. Palestine. Syria, Armenia.

G. stolidus F. (Vol. 3, p. 331, pl. 61 f). — **incompleta** Buresch. The inner white transverse band on forewings is completely absent. Described from the Rhodope mountains.

25. Genus: **Pelamia** Guen.

P. electaria Brem. (Vol. 3, p. 332, pl. 61 f). — **electariella** Stdr. The black submedian streak is absent on forewings or is only diffusedly indicated. Probably only an aberration. East Asia.

28. Genus: **Erecheia** Wkr.

E. umbrosa Btlr. (Vol. 3, p. 335, pl. 61 h). — **umbrosana** Stdr. The inner marginal and marginal areas are not pale brown, but of the same colour as ground colour of wing. Paler streaks in interstices between the veins in marginal area. — **subumbrosa** Stdr. is similar but the forewings are more of a grey-brown with a diffuse black longitudinal submedian streak and a similar short white streak before the postmedian. — *prominens* Stdr. is synonymous with **variegata** Warr.

33. Genus: **Clytie** Hbn.

Cl. scotorrhiza Hmps. (*Pglr.* i. l.) (23 e) differs from all other species by an indented black basal streak on forewings. Pale reddish brown, with darker speckles. The transverse lines are only slightly sinuate and they are marked in black and with somewhat whitish edges on sides facing one another. White punctiform orbicular stigma with black surround, the small reniform stigma is also whitish circumscribed by black. Small black sagittate marks are situate before the whitish subterminal line. Hindwings whitish with wide black-brown marginal band and white fringes. Palestine (Dead Sea).

- syrdaja*. **Cl. syrdaja** *Hmps.* (*B.-H.* i. l.) (23 e) differs from the similar *arenosa* by the whitish, faintly brownish hindwings with wide black marginal band. Forewings brownish grey dusted with black-brown. The very faint thin dark transverse lines are barely indicated. Orbicular stigma is faint and punctiform and there are discal lunules. The pale brownish subterminal line has a dark outer edge on both sides. In ♀ the transverse lines are somewhat more distinct, reniform stigma with pale centre. Hindwings more suffused with reddish brown. West Turkestan (Aulie Ata), also in Algeria (Guelt es Stel, El Mesrane).
- arenosana*. *Cl. arenosa* *Rothsch.* (Vol. 3, p. 338, pl. 63 a). — **arenosana** *Strd.* has more distinct transverse lines, whilst the subterminal line is less distinctly edged with black. Algeria.
- nabataca*. **Cl. nabataea** *Hmps.* (*Pglr.* i. l.) (23 e) resembles *syriaca* being paler but more heavily irrorated. Subterminal line with very sharply angulated black point to the margin on vein 6 and with roundish projection between 3 and 4, almost straight subanally; edged with white outwardly and black inwardly. Hindwings yellowish with wide brown marginal band. A 1 mm wide yellow band before the deep brown undulate marginal. Fringes whitish. Palestine.
- euryphaca*. **Cl. euryphaea** *Hmps.* Head and thorax ochreous whitish, dusted with sepia. Abdomen yellowish white. Forewings yellowish white, dusted with grey and speckled with black. Marginal area inclined to bluish grey. Anterior transverse line blackish, interrupted, undulate only extending to submedian fold. Posterior line indistinctly double. Orbicular stigma white, punctiform, with dark brown surround. Reniform shaped like an "8", brownish grey, whitish at bottom, circumscribed by deep brown. The whitish subterminal line bilaterally brown, undulate. Before it there is a blackish shade on costa, curving outwards below vein 7 and having a black spot inwardly. Marginal line undulate, black. Hindwings yellowish white, with fulvous veins and wide brown-black marginal area with narrow yellowish white subterminal band. Fringes yellow-white. Wing expanse: 58 mm. Arabia (Sôkal Rhamis).

35. Genus: **Pericyma** *H.-S.*

- rufescens*. *P. albidentaria* *Frr.* (Vol. 3, p. 338, pl. 62 d). — *pallidior* *Strd.* is synonymous with **rufescens** *Warr.* Syria.

36. Genus. **Cortyta** *Wkr.*

The views as to the homogeneousness of the various species in this Genus vary considerably. Whilst HAMPSON in his Cat. Lep. Phal. included 7 species, ROTHCHILD considers them all to be forms of a single highly variable species. Until exact anatomical examinations have clarified the position, we deem it best, to accept HAMPSON's subdivision into species. The "species": *balnearia* *Dist.*, *impar* *Hmps.*, and *eremochroa* *Hmps.* are however certainly not palaearctic.

- leucoptera*. **C. leucoptera** *Hmps.* is very close to the following *dispar*, differing by the paler ochreous whitish ground colour. There is no darker brownish colouration of the outer half of median area. Further the marginal area is grey-white, in *dispar* it is more densely dusted with sepia. Only very little grey dusting is present before the black antemedian. Median area faintly suffused with fulvous. A blackish spot at apex posterior to whitish subterminal line. Hindwings as in *dispar* but with darker intersecting line at fringe. Wing expanse: 30 mm. West Algeria.
- dispar*. **C. dispar** *Pglr.* (Vol. 3, p. 339) (23 e). We are now able to give illustrations of this pretty species. — *disparella*. **disparella** *Strd.* On forewings antemedian and postmedian areas are dusted with brownish black. — *disparoides*. *Strd.* Forewings more unicoloured pale fulvous, also hindwings have a brown hue. — *sabulifera* *Warr.* is illustrated on pl. 63 of Main Volume, but was omitted from text. Possibly it is the ♀ of *bifasciata*, which WARREN classified with *fasciolata* (Vol. 3, p. 339, pl. 62 e ♀, 63 a ♂), but which is more likely to belong to *dispar*, all the more as WARREN mentions "= ab. 2 *Hmps.*", whilst however HAMPSON does not in fact mention an "ab. 2" under *fasciolata*. On the other hand he does under *dispar*, which would then be identical with *disparella* *Strd.* In this case *bifasciata* would have priority. It will be necessary to examine the types and their genitalia. *sabulifera* is described as being sandy grey, dusted with brownish in basal half. Basal area and central area darker at costa. Lines very indistinct, double, with paler interfilling. The outer one much less crenulated than in *fasciolata*, not curved inwards under the reniform stigma, terminating nearer the anal angle on inner margin, so that the median area is wider. Reniform stigma extinct. Subterminal line paler, sharply bent under the angulation on vein 7. Hindwings paler, the lines less distinct. The width of the median area and the marking of the lines agree with those of *dispar*, but the colouration is entirely different. Lower Egypt, Atbara River; only 1 ♀ is known.
- assimilis*. *C. fasciolata* *Warr.* (Vol. 3, p. 339, pl. 62 e ♀, 63 a ♂). Nothing is said in the text as to — **assimilis** (pl. 63 b), perhaps it should be *subsimilis* *Warr.*, although the illustration does not really agree with the description.

C. vilis Wkr. (Vol. 3, pl. 63 b) was omitted from the text. HAMPSON created a special Genus: *Gnamptonyx vilis*, for this species, as the fore tibiae have a curved spine at the ends. However according to outer appearance, the species fits in well here. It closely resembles the illustration of *assimilis* of the preceding species but is somewhat larger and has a large spot in the centre of costa of forewings. Markings of hindwings are heavier. Wing expanse: 26—38 mm. Aden, distributed over the Sudan, Somaliland and also in Arabia and India.

C. vetusta Wkr. (Vol. 3, p. 339, pl. 62 e). — **pallidior** Strd. is a paler form. The "forms": *rosacea* Rbl. *pallidior*, and *acrosticta* Pglr. are classified both by ROTHSCHILD and HAMPSON as genuine species, which is probably correct.

37. Genus: **Anydrophila** John.

A. sabouraudi D. Luc. (Vol. 3, p. 340). It was omitted to refer to the illustration on pl. 75 g in Main *sabouraudi*. Volume.

38. Genus: **Cerocala** Bsd.

The species placed in this Genus in the Main Volume have in several cases been grouped incorrectly and it is necessary to recapitulate as follows:

C. scapulosa Hbn. (Vol. 3, p. 340, pl. 62 f). A species that varies very little and is correctly described *scapulosa*, and illustrated in Main Volume. *algiriae* and *biskrensis* that OBERTHÜR classifies with it, do not actually belong here, the former is a separate species. Whether — **albifusa** Joan. belongs to it, is doubtful. The description *albifusa*. reads: ground colour of forewings pale pearly grey, veins dusted with black, the black-brown lines and interstices as in the type form, the discal area faintly suffused with brown in the lower posterior part. The elongated olive eyespot circumscribed with pale reddish in the lower part. The deep indent between postmedian and reniform mark is a pure white. Marginal area pearly grey with a black arc. Hindwings with white ground dusted with pale reddish grey as in *scapulosa*, the black marginal spots, sharply outlined. Alexandria (Egypt).

C. rothschildi Trti. (= *insana* Rothsch., nec Stgr., *sana* Warren in SEITZ) (23 f) is an intermediate species *rothschildi*. between *scapulosa* and *insana*, smaller than the former, larger than the latter. Colouration darker than *algiriae*. The white subterminal line forms 2 indents inwards, whilst in the other species there is an additional more or less distinct small subapical. The arrangement of the markings is the same. Hindwings somewhat suffused with brownish, with grey-brown submarginal band and 2 black marginal spots in white ground. Algeria. The species was illustrated as "*sana*" in Vol. 3, pl. 62 f, but the illustration was not good and we are now giving a better picture.

C. sana Stgr. (23 f) is not the species described as such by WARREN in the Main Volume, p. 341, but a *sana*. different species, correctly designated by HAMPSON in his Cat. Lep. Phal. and which however does not occur in N. Africa. The illustration on pl. 62 f represents the preceding *rothschildi*. It is a relatively small compact species, of dark colouration, all pale bands of forewing usually boldly interfilled with dark scales, so that they appear to be edged by thin pale lines. The pale reniform stigma very narrow. It is difficult to explain in a description the differences from *insana*. HAMPSON's statement that the postmedian is somewhat incurved under the costa, which is not the case in the other species, is not always actually so. It only occurs in Asia Minor (Taurus; Mersin), Syria and in the Persian Gulf. According to AMSEL it also occurs in Palestine, where the moth flies exclusively on the sandhills. In — **sanana** Strd. (= ab. 1 *Hmps.*) the white postmedian band on fore- *sanana*. wings is very narrow and does not extend to the subterminal line. — **sanella** Strd. (= ab. 2 *Hmps.*) has the *sanella*. subterminal band on forewings extinct towards the margin.

C. perorsorum Trti. (23 f) is also somewhat bigger than *insana*. Markings and colouration daintier than *perorsorum*. in the preceding species. Ground colour milky white, the darker markings seem powdered over with grey-white. The arrangement of markings is the same as in the other species. Hindwings on the other hand remind one more of those of *scapulosa* owing to the wider and more distinct postmedian band and the greater extension of the black marginal spots. — **fulgens** Trti. (23 f) denotes a somewhat darker form of this very variable species *fulgens*. It has a more yellowish tone to ground colour with darker markings — **autumnalis** Trti. is the second generation, *autumnalis*. occurring in October — the first flies in March — this is plainly a stunted form of only half the size and with duller colouration. Cyrenaica, flying along the sea coast in daytime.

C. insana H.-S. (= *algiriae* Obth.) (Vol. 3, p. 341, pl. 62 f). According to ROTHSCHILD the name *insana* *insana*. should be annulled, as HERRICH-SCHÄFFER described the species as from the Cape of Good Hope and also the illustration is open to doubt. As however HAMPSON especially mentions that this origin is erroneous, we prefer to retain the name here. It is the smallest and palest species. — **biskrensis** Culot (23 f) denominates the palest *biskrensis*. specimens of all, with pure white hindwings, without any trace of black spots. The species *insana* is unbelievably variable and if one wished one could probably separate 50 forms. On plate 23 f we are giving illustrations

of several different specimens that vary very considerably and in part remind one of *perorsorum*. It is difficult to classify them or to believe in their claim to specific rank. — *insanella* Strd. (= ab. 1 *Hmps.*) has forewings uniformly suffused with reddish and duskier markings. Hindwings with extinct marginal spot and terminal band.

39. Genus: **Leucanitis** Guén.

chinensis. **L. chinensis** Alph. (Vol. 3, p. 388) does not belong under *Anumeta*, but should be classified next to *picta* Christ. (Vol. 3, p. 341, pl. 62 g). from which it differs by longer cilia to ♂ antennae.

41. Genus: **Gonospileia** Hbn.

aurantiaca. *G. glyphica* L. (Vol. 3, p. 343, pl. 62 i). — **aurantiaca** Schaw. has forewings with more variegated colouring. Ground colour mauve-grey, transverse bands and apical spot deep chocolate brown. Hindwings orange-yellow. Albarracin. — **taurica** Culot is an especially pale form from the Crimea.

oranensis. **G. oranensis** Rothsch. is classified by its author in the Genus *Drasteria* Hbn., which consists exclusively of north american species and which remind one somewhat of *G. mi* Cl. The generic classification is in this case open to doubt. Antennae black-brown, body pale reddish sand colour, a streak on the collar and edges of scapulae are deep fuscous. Forewings pale cinnamon brownish, dusted with brown in basal quarter, with numerous black lines and rings, in centre a convex sandy brown band, posteriorly dusted with brown with a black posterior transverse line. Subterminal line distinct. Reniform stigma reddish white, crenulate, a cinnamon-brown spot on margin between veins 3 and 4. Hindwings white with black marginal band, outwardly with 3 white spots and inwardly conjoined with a black discal stigma. It must be mentioned here that in Nov. Zool. 27 on plate XVI, the figure numbers 16 and 17 are inverted. Fig. 17 denotes *oranensis* and 16 *Cortyta rosacea* Rbl. and not the reverse.

insulata. *G. mi* Cl. (Vol. 3, p. 343, pl. 62 h). — **insulata** Klem. The lobe of the postmedian spot on forewings, pointing towards the anal angle, is widely interrupted by white. Brodow. — **vitiosa** Wehrli shows a reduced middle area of forewings, in which the outer transverse stripe extends to the inner margin in an "S" shape, so that it forms only one lobe at its lower end, emitting white ray-like extensions towards the margin. Base of hindwings brown, not white, the black central band being double as wide. Frauenfeld (Switzerland).

15. Subfamily: **Phytometrinae**.

3. Genus: **Syngrapha** Hbn.

goetschmanni. *S. ain* Hochenw. (Vol. 3, p. 345, pl. 64 b). — **goetschmanni** Skala shows the silver "y" mark widely filled out. It should not be mistaken for *tumidisigna* Warr., in which only the tail of the "y" is expanded. — *penegalensis*. **penegalensis** Strd. The silver mark is completely absent, described from a specimen from the Mendel Pass. — *infumata*. **infumata** Schwing. has both fore and hindwings duskily suffused. From Hochschwab.

v-notata. *S. microgamma* Hbn. (Vol. 3, p. 346, pl. 64 a). In — **v-notata** Strd. we have the inverse form to *incompleta*, the dot is absent and the "v" mark retained.

aureomaculata. *S. interrogationis* L. (Vol. 3, p. 346, pl. 64 b). — **aureomaculata** Vorbr. has a golden mark on forewings instead of the silver one. — **aureoviridis** Wgnr. is a fine aberration, the entire wing except for the lower half of central area is suffused with golden green. The large, perfectly fresh specimen, which I was enabled to inspect by the courtesy of Mr. FRITZ WAGNER, was captured in Bohemia (Eger). — **orbata** Warr. has as synonym — *annulata* Strd.; — **flammifera** Huene has as synonym — *confluens* Strd. — **simplex** Strd. denotes specimens where the spot or ring behind the stigma is absent.

cinerea. **S. cinerea** Warr. (= *pyrenaica* *Hmps.*) (Vol. 3, p. 346, pl. 64 c) is certainly a genuine species. It differs in the first place from *interrogationis* by the grey discal area, which is the same shade as the rest of the ground colour and therefore not brown. Also the head and thorax are not dark brown, but mauve-grey. Hitherto only known to occur in the Pyrenees: Gèdre, Gavarnie and Cauterets. — **gammifera** Warr. is certainly a form of same.

sachalinensis. **S. sachalinensis** Mats. Forewings dark grey, somewhat paler in costal half and at margin, with a black undulate subbasal. Anterior transverse line black, double. Outer line edged with a fine yellowish line below the mediana. Below the oval pale grey orbicular stigma with darker inner ring, there is a pale yellowish "V" shaped mark, with a yellowish dot below outwards. In place of the reniform stigma are 2 velvety black striations, each of which is edged with white inwards. The double black-brown undulate postmedian line is interfilled with white. The dentations of the undulate black subterminal become larger and wider towards the apex and are situate here in a nebulous brownish black patch. Along the margin are white lunular streaks with dark marginal line posteriorly. Fringes pale grey and checked with brownish black. Hindwings brownish black, darker at margin. Wing expanse: 32–35 mm. S. Saghalin (Ichinosawa).

S. nyiwonis Mats. is very close to the preceding. It is somewhat smaller. Central area under the median velvety black. The black, white ringed orbicular stigma is not oval. Black reniform stigma is auriform deeply indented outwardly and with white edge. The stigma is pure silvery white, either conjoined or separated from the spot behind. A large grey-white triangular patch on costa before the subterminal. Marginal area very pale grey-white with bluish tone, almost pure white at anal angle. Hindwings black-brown, with wide yellowish band posterior to centre. Wing expanse: 31 mm. N. Saghalin, at the beginning of August.

4. Genus: **Phytometra** Haw.

P. festucae L. (Vol. 3, p. 347, pl. 64 c). — **coalescens** Schulz (= *marisola* Krul., *festucella* Strd.) (23 g) *coalescens*. has the 2 silvery spots below the cell coalescent.

P. bractea F. (Vol. 3, p. 347, pl. 64 d). — **bracteana** Strd. (= ab. 1 *Hmps.*) denotes a specimen in which *bracteana*, the lower end of the golden mark is somewhat prolonged outwardly. — **argentea** Gronemann has a silver mark *argentea*, instead of the golden one on forewings.

P. chryson Esp. (Vol. 3, p. 348, pl. 64 e). — **coreae** Strd. (23 g) has the golden spot of forewings greenish, *coreae*, it does not extend to the subterminal line. Corea. We are illustrating a similar specimen from Japan. — **euporia** *euporia*. *Dhl.* denominates an autumn brood, that occurs in the S. Tyrol (Terlan) in October and November. Very dark specimens in which the gold mark almost touches the costa, the transverse lines of hindwings standing out more distinctly from the marginal band and closer to the margin.

P. zosimi Hbn. (Vol. 3, p. 348, pl. 64 e). — **brunnickii** Klem. is a form in which the metallic bands of *brunnickii*, forewings are not green, but coppery golden. Podhorce near Stryj.

P. chrysitis L. (Vol. 3, p. 348, pl. 64 f). — **decorata** *Dhl.* is an aberration in which the metallic sheen is so *decorata*, extensive that the inner marginal patch of the ground colour is almost completely extinct. From Bolzano and Rome. — **rosea** *Kaucki* denominates a specimen from Poland that is suffused with rose. — **croesus** *Bryk* denotes *rosea*, a swedish specimen with golden macula at end of cell. — **splendidior** *Fdz.* is of much more lively colouration, the *croesus*, metallic green is of quite extraordinary intensity. The outer line that edges the green band is strongly undulate, the *splendidior*, brown median band is deeper scarlet-brown. Hindwings darker, subterminal that expands at anal angle completely absent. Salamanca.

P. aemula Schiff. (Vol. 3, p. 350, pl. 64 i). — **argentea** *Hoffm.* has pure silvery macula. Styria. — **carinthiaca** *Strd.* forewings uniformly suffused with reddish, macula faintly golden. Carinthia. — **altaretensis** *Testout* *argentea*, *carinthiaca*, *altaretensis*. has pale grey yellowish forewings with blackish veins and pale silvery spot and dark brown subapical patch. From Lautaret, at an altitude of 2100 m, occurring among normal specimens and therefore probably aberrative.

P. ornata Brem. (Vol. 3, p. 351, pl. 64 i). — **contacta** *Kozh.* denotes specimens in which the "V" mark *contacta*, is conjoined with the silvery tear-shaped spot. From Minussinsk.

P. pulchrina Haw. (Vol. 3, p. 351, pl. 64 k). — *juncta* *Greer* is synonymous with — **percontatrix** *Auriv.* — *perecontatrix*, **incipiens** *Schaw.* corresponds to ab. *inscripta* *Esp.* of *jota*, both golden spots on forewings are absent or the hook *incipiens*, mark is indicated by a minute golden triangle. From the Tyrol (Kufstein).

P. gamma L. (Vol. 3, p. 351, pl. 65 a). — **gartneri** *Skala* is clearly an aberrative specimen of strange *gartneri*, appearance. Ground colour is pale with "dissolved" gamma mark. According to a specimen from Grätz in Moravia. — **alepica** *Nitsche*. Forewings paler, hindwings completely hyaline, except for the wide blackish margin. *alepica*, Rohrwalde. — **bipartita** *Orstadius* has the silver mark split in two. Sweden. — **rufa** *Verity* the black dusting is *bipartita*, replaced by a nice red, the more or less golden gamma is silvery. — **comma** *Ostrejkwona*. The gamma mark is *rufa*, reduced to a simple, fairly thick bar, that is excurved in centre towards the outer margin. From around Vilna. *comma*.

P. nigrisigna Wkr. (Vol. 3, p. 352, pl. 65 a). — **lana** *Strd.* shows the silver mark below the cell in "y" *lana*, shape. — **nala** *Strd.* is deeper coppery brown in the innermarginal half of central and subterminal areas. East Asia. *nala*.

P. confusa Steph. (Vol. 3, p. 352, pl. 65 b). — **deangulata** *Strd.* The silver mark on forewings is not *deangulata*, angulated inwards, but has anteriorly a small silver streak on mediana. — **aestiva** *Krul.* is obviously a 2nd *aestiva*, generation. Much darker, innermarginal half more of a rusty brown, the silvery transverse stripe better developed. Hindwings also are darker. Wiatka, Kasan; also from S. Tyrol in October. — **grisea** *Dhl.* denotes more *grisea*, unicoloured, greyish specimens. Similarly from the S. Tyrol.

P. albostrata Brem.-Grey (Vol. 3, p. 352, pl. 65 b). — **acuminata** *Strd.* (= ab. 2 *Hmps.*) has the silver *acuminata*, mark attenuated at both ends, it extends neither to the mediana, nor to the postmedian line. — **disjunctana** *disjunctana*, *Strd.* The silver mark does not quite extend to the postmedian. (ab. 1 *Hmps.*)

P. accentifera Lef. (Vol. 3, p. 353, pl. 65 c). — **atra** *Rocci*. Forewings dark brown with bronze sheen. *atra*, the silver mark consists of a minute streak. All other marks are quite extinct with the exception of the 2 brown

apical and discal zones, that are more prominently dark. Hindwings brownish with wide dark premarginal band. Bred from a larva from San Remo.

satiata. *P. variabilis* Piller (Vol. 3, p. 354, pl. 65 d. c). — **satiata** Dhl. is a dusky form with sooty olive-black-brown ground colour. The pale markings at base, around the maculae and on costa are evanescent, only in the transverse lines and in an oval oblique spot on costa, a little rose colour is retained. S. Tyrol.

generosa. **P. generosa** Stgr. (Vol. 3, p. 354). We are able to give an illustration (23 g) of this pretty and rare species, that has hitherto been repeatedly captured in the Taurus and also Lebanon districts.

taurica. *P. consona* F. (Vol. 3, p. 354, pl. 65 d). — **taurica** Osth. (23 g) is somewhat smaller and sleeker, with paler colouration, the darker patches pale olive-brown. Reniform stigma is absent, the double line in marginal third does not extend to apex, but terminates at the upper edge of the dark marginal area and is more or less extinct. Only the anal part of the whitish submarginal line is present. From Marash and Akshehir, occurring from April to June.

herrichi. **P. herrichi** Stgr. (Vol. 3, p. 355, pl. 65 e). Nothing is mentioned in the Main Volume about the occurrence of this species in S. France. BELLIER had given the name *uralensis* Bell. nec Ev. (= *bellieri* Kirby) to the specimens. As there is a specimen ("e coll. BARTEL") in the SOHN-RETHEL collection, I made enquiries and have received the following reply from Mr. BOURSIN: "At that time (1858?) BELLIER found a number of larvae near Larche (Basses Alpes) feeding on Aconitum anthora. From these, 7 specimens of a *Plusia* were bred, which he described as *uralensis* and which STAUDINGER enumerated as synonymous with *herrichi* v. *eversmanni*. 6 of these specimens are in the OBERTHÜR collection, 1 in the LUCAS collection." Later OBERTHÜR gave orders for all *P. variabilis* to be collected by Cotte in Digne and among a number of the latter, he found 1 specimen of *uralensis* Bell. Further specimens do not seem to have been captured there. The species appears to also occur in the Urals and I have 1 specimen with label from that locality. The french specimens scarcely differ from the asiatic *herrichi*, they are only slightly paler, the apex of wing rather more extended and the margin therefore more oblique.

viridis. *P. modesta* Hbn. (Vol. 3, p. 355, pl. 65 e). We are able to give an illustration of the form — **viridis** Stgr. (23 g). It is very questionable, whether this is only a subspecies, it would appear to be a genuine species.

shugnana. *P. inconspicua* Hbn. (Vol. 3, p. 355, pl. 65 f). — **shugnana** Shelj. denotes a race from the West Pamirs (Chorog), which is of much paler colouration, basal and outer areas and maculae pale buff, also the dark median area is paler and at the same time wider. Hindwings fulvous, not black-brown. Transverse line and discal spot pale but distinct. Underside monotonous yellowish, no dusky patches.

florida. *P. ni* Hbn. (Vol. 3, p. 356, pl. 65 g). — **florida** Dhl. of milky white ground colour with pale silvery grey markings, the latter very delicate. Hindwings whitish grey, grey at margin. From the central italian Chalk mountains, from an altitude of 1800—2100 m.

limbirena. **S. limbirena** Guen. (= gamma Koll., ? *melanocephala* Mschlr.) (23 h). Probably stretches into palaearctic territory both in north Arabia and in west China. It is marked similar to *ni* and should be classified after this species (Vol. 3, p. 356, pl. 65 g). Ground colour is not grey-white, but more of a deep scarlet-brown with mauve-grey tone. The silver mark is placed more horizontally. It can be immediately recognised by a reniform pale bright reddish spot in centre of marginal area. Hindwings darker than in *ni*.

tarassota. **P. tarassota** Hmps. (23 h). Similar to the preceding. Forewings are more ochreous, suffused with golden brown, especially in inner marginal half of central area and before the subterminal. The silver mark is separated, the inner half is more "U" shaped and the outer part like a thick silver tear-shaped mark. There are black dots in the 4 corners of the reniform stigma. In marginal area the small reddish spot is absent. Hindwings golden brown with white fringes. Wing expanse: 36—40 mm. This species, that is known from Sikkin and Madras, also occurs in Japan. (In the PÜNGELER collection in the Berlin Museum).

camptosema. **P. camptosema** Hmps. (23 h). Resembles *confusa* most, but with the reddish colouration of *jota*, irrorated with dark brown, dark red-brown below the cell, admixed with reddish yellow in submedian. The silver mark as in *confusa*. Reniform stigma finely ringed with silver. The double brown postmedian is interfilled with ochreous, silvery white below vein 2. Hindwings ochreous reddish, darker at margin. Wing expanse: 42 mm. This species, that was hitherto only known to occur in Kashmir, is also found in Japan, according to specimens in the PÜNGELER collection.

5. Genus: **Plusidia** Btlr.

valdepallida. *P. cheiranthi* Tausch. (Vol. 3, p. 357, pl. 65 g). — **valdepallida** Strd. Forewings much paler and hindwings whitish with only faint brown hue. — **amurensis** Warn. The form from the Amur is larger and the rose-reddish tone on forewings is absent.

6. Genus: **Chrysoptera** Latr.

Ch. aureus O. B.-H. should be classified after *C. aureum* Knoch (Vol. 3, p. 357, pl. 65 h). Forewings are *aureus*, unicoloured dark brown in basal and median areas. The antemedian almost extinct with a sharp point outwardly below costa, then vertically and situate outwards over the inner margin. The postmedian extends from just before the apex in a straight line to the outer third of inner margin. The area behind is brilliant metallic golden. Wing expanse: 36—38 mm. Tsekou (S. W. China).

7. Genus: **Abrostola** O.

A. triplasia L. (Vol. 3, p. 358, pl. 65 k). — The illustration of the form — **clarissa** Stgr. (23 h) does not *clarissa*, belong here, but to *asclepiadis* Schiff. (Vol. 3, p. 359, pl. 65 k).

A. canariensis Hmps. (23 h). This smaller species was first classified as a form of *tripartita* (Vol. 3, p. 359, *canariensis*, pl. 65 k) but it is certainly a genuine species. It closely resembles the latter, but is much smaller, more brownish in colour, admixed with pale reddish, especially in the lower half of the very heavy black postmedian, which extends to the apex in a pale reddish oblique streak. Canary Islands.

8. Genus: **Episema** Ochs.

This Genus is better known as *Diloba* Bsd. with the single species: *caeruleocephala* L. It was appended to the *Cymatophorids* among the *Bombyces* in Vol. 2, p. 332 and Suppl. Vol. 2, p. 194, but the species does not belong there at all. It is certainly a genuine *Noctuid*. HAMPSON classified it as an aberrative type of *Phyto-metrinae*, where it can be quite well attached to the *Abrostola* species. From these it differs mainly by the atrophied proboscis and ciliated eyes. The larva also is not so very dissimilar from that of an *A. asclepiadis*. The Genus: *Episema* was denominated by OCHSENHEIMER in 1816. TREITSCHKE designated *caeruleocephala* as generic type in 1825, whilst *Diloba* was only established by BOISDUVAL in 1840.

E. caeruleocephala L. (Vol. 2, p. 332, pl. 49 l). We are now illustrating the form — **armena** Stgr. (23 i) *armena*, from a specimen from Marash. It looks so entirely different, that it may perhaps claim the right to be a genuine species. — **infumata** Schwing. denotes a very dusky form from the neighbourhood of Vienna, in which only *infumata*, the stigmata remain yellowish. — **capnodes** Dhl. from the S. Tyrol has also a dusky black-grey ground colour, *capnodes*, but in this case also the stigmata are sooted over.

16. Subfamily: **Noctuinae**.4. Genus: **Scoliopteryx** Germ.

S. libatrix L. (Vol. 3, p. 361, pl. 52 n). The form — **pallida** Spul. does not occur exclusively in Turkestan, *pallida*, but may also be found elsewhere. We are illustrating a pale yellowish form from Rome (23 i). — **besti** Osth. *besti*, clearly denotes an aberrative specimen from Schleissheim, which probably resembles *suffusa* Tutt. Forewings monotonous dark violet-grey with a reddish hue. White markings much reduced and suffused with grey. Transverse lines of forewing approximated and merging at inner margin.

4a. Genus: **Raphia** Hbn.

This Genus was quite omitted in Main Volume. It embraces a few species of compact structure. Palpi short, appressed to frons, covered from above by a stout frontal crest. Proboscis developed. Thorax scaled, with slight crest at rear. Abdomen with coarse hairs, with crest on first segments. Tibiae long and densely haired. Antennae pectinated in ♂, simple in ♀. Forewings fairly wide with rounded apex. Vein 3 arises shortly before the lower end, where 4 and 5 arise. Hindwings with bold vein 5 from below centre of disco-cellular nerve, 3 and 4 close together, but not from one point, 6 and 7 on a very short stalk.

Type: *R. hybris* Hbn.

R. hybris Hbn. (23 i). Forewings speckled with black on whitish ground, pale ochreous tone in basal *hybris*, area. A parallel blackish shade before the bold black antemedian. Stigmata are absent except for a few blackish scales in place of the lower end of the reniform. The crenulate postmedian indistinctly double, the area behind it with faintly yellowish tone. Subterminal line spotted blackish, faint short striations along the veins before the checked fringes. Hindwings whitish, spotted with blackish at anal angle. Fringes faintly checked. S. France, Spain, Algeria. — Ova whitish. — The stout larva is green, marked with red and white on the first segments, a dark lateral streak behind the head. It feeds in summer on poplars and pupates in a cocoon in crevices in the

bark of the stem. The imagines emerge in July and according to RIBBE already in June near Granada. In Gibraltar there are 2 generations, the first in April, the second in August.

peusteria.

R. peusteria *Pglr.* (23 i) resembles *hybris*. Forewings blackish grey, admixed with yellowish at base, with bold black semi-circular curved antemedian. The thin posterior transverse line dentate with an indistinct median shade in front. A large pale yellowish patch in central area. No stigmata. A yellowish subterminal line with darker inner edge is indicated. The dark fringes somewhat admixed with yellowish. Hindwings white, a blackish spot at anal angle. Fringes dark grey with paler admixture. Crests on abdomen bolder than in *hybris*. Pectinations of ♂ antennae somewhat longer. Kuku-Nor; a somewhat darker form occurs also at Sutshanski Rudnik (collection of O. BANG-HAAS), of which we are illustrating a specimen.

approximata.

R. approximata *Alph.* also most resembles *hybris*. Forewings are ashy grey, peppered with darker grey and therefore markings are more indistinct. Basal area has a straighter outer edge. The posterior transverse line is also straighter below the arc. The area between the two central transverse lines is dusted with grey-white towards the costa. Hindwings darker with a distinct central shade. North Ferghana (Tashkent).

aethiops.

R. aethiops *A. B.-H.* (23 i) has black forewings, only faintly scaled with white in central area. Transverse lines jet black, the anterior one being invisible at inner margin, forming an arc; the outer line crenulate and with slight whitish edge towards the margin. Orbicular and reniform stigmata faintly circumscribed by black and with whitish centres. A white dentate subterminal line is distinct. There is an interrupted black marginal line. Fringes black partially admixed with whitish. Hindwings pure white, with blackish and nebulous whitish patch at inner angle. Veins faintly blackish at margin, fringes black, partially admixed with white. Wing expanse: 29—34 mm. Algeria, January to May, from Lamoricière and Magenta. ROTHSCILD remarks regarding *hybris* that "frequently melanic specimens occur" in Algeria, and these should possibly be classified here.

11. Genus: **Sypna** *Guen.*

erebina.

S. erebina *Hmps.* Head and thorax brown admixed with dark brown and grey. The crest on grey-brown abdomen is somewhat whitish. Forewings olive-brown speckled with blackish with darker shadings before the subterminal. Anterior transverse line dark with paler edges on both sides. In centre of cell a small white spot with black edge. The narrow reniform stigma has an ochreous streak in centre and a yellowish edge and is extended inwards on the mediana. An undulate line extends from there obliquely to the inner margin. The dark postmedian is edged with white on both sides at costa, otherwise the edge is pale brown and it proceeds backwards under vein 4 to reniform stigma. Subterminal black, extinct, the margin behind it slightly paler; on margin black streaks that are white outwardly. The grey-brown hindwings have an indistinct postmedian and double undulate subterminal. In many specimens the veins are dusted mauve-grey, transverse lines and reniform stigma are edged with bluish white, in others the median area is white except for a costal patch. Wing expanse: 58—64 mm. W. China (Nitou, Pn-tsu-fong, Ta-tsien-loo).

leucozona.

S. leucozona *Hmps.* Head and thorax pale fulvous, admixed with ochreous. Forewings ochre-brown with mauve-grey tone in basal and postmedian areas. The double antemedian is interfilled with whitish. The white very narrow median area is dusted with brown and has a red-brown costal spot. Orbicular stigma small, white with brown edge. It is close to the white, narrow reniform that is extended outwardly at top and inwardly below; it has a brown centre. The double postmedian is interfilled with white, it proceeds straight to the reniform and from there to inner margin with a black suffusion posteriorly. The black subterminal is spotted in its upper, dentate in its lower half. Hindwings pale grey-brown with traces of a postmedian and a double diffuse subterminal that is filled with whitish on inner side. Wing expanse: 62 mm. W. China (Washan); also from the Pmjab.

rubrizona.

S. rubrizona *Hmps.* Head and thorax dark brown, mixed with grey. Forewings dark chocolate brown, dusted with mauve-grey in basal and postmedian areas. The double antemedian is interfilled with brown. Median area brown, except for a patch on costa. Orbicular stigma small and with black circumscription. It is close to the very narrow reniform that is elongated outwards at top and inwards beneath. The black postmedian is edged at costa on both sides and then only outwards with brown, it proceeds straight to reniform stigma and thence to inner margin. The black subterminal is marked as in the preceding species. Hindwings dark brown with postmedian indicated, having an ochreous edge on both sides as far as the inner margin. A double subterminal is interfilled with yellow-ochre. In many specimens the pale part of the median area is blue-white, orbicular stigma with pure white core. Wing expanse: 62—70 mm. China (Omei-shan, Chia-kou-lo, Ta-tsien-loo).

12. Genus: **Polydesma** *Bsdv.*

striata.

P. striata *Herz* is smaller than the somewhat similar *P. mastrucata* *Fldr.* Body grey-white, abdomen almost white. Wings impure grey-white. Forewings somewhat darker, speckled with brown. The thin subbasal is dark brown, the anterior transverse line at $\frac{1}{3}$ arises from a dark brown costal spot and extends from the brown

encircled orbicular stigma in a double line to the inner margin. Above the wide brown reniform stigma, there is a blackish costal spot and posteriorly the crenulate outer transverse line, which is white with dark inner edge. In place of subterminal line there are triangular black spots, tipped with white outwardly, forming a double arc to inner margin. The marginal area beyond is dark brown, the black marginal line is interrupted by white patches on veins. Hindwings are more uniformly whitish grey, traversed by 4 brown transverse lines, the 2 outer lines are wider and more diffuse. Marginal line as on forewings. Corea.

13. Genus: **Pandesma** *Guen.*

P. anysa *Guen.* (Vol. 3, p. 367, pl. 67 g). — **distincta** *Rothsch.* is smaller, the build is less compact, colour-*distincta*.
ation more unicoloured dark grey. Reported to occur in Algeria and Tunis, June to September.

20. Genus: **Apopestes** *Hbn.*

A. spectrum *L.* (Vol. 3, p. 370, pl. 68 a). — **nigra** *ab. nov.* (24 a) denominates a very nice deep black-*nigra*.
brown aberration, in which all markings are obscured by the sooty ground colour. From a perfect specimen
in the collection of SOHN-RETHEL from Capri. — **koreana** *Herz* has a narrower wing contour and less pointed *koreana*.
apex. The marking of the bands is very faint, reniform stigma with black surround, not pale, narrower. The
white punctiform marginal specks are absent. Underside darker and more glossy. Corea.

21. Genus: **Autophila** *Hbn.*

In this Genus one cannot avoid the impression that one page of WARREN's original manuscript may have been omitted. On the one hand several species that have long been known and described, have been left out and on the other, illustrations were given, which were not mentioned in the text. It is important that this difficult Genus be subjected to a closer examination, especially also in regard to its relationship to the Genus *Dasythorax*, which is certainly closely related.

A. cataphanes *Hbn.* (Vol. 3, p. 371, pl. 68 c). In view of the great similarity of many of these species, *cataphanes*.
the illustration in Main Volume, is not sufficiently exact and we are giving here a better illustration of a specimen
from Capri (24 a). — **roseata** *Rothsch.* Here also we are illustrating a very typical specimen (24 a). — **amianta** *roskata*.
Schaw. denotes a specimen from Croatia, that is pale ochreous with barely indicated transverse lines, and that *amianta*.
on upper as well as undersides, is completely devoid of markings. — **corsicosa** *Schaw.* is a large form (35—40 mm) *corsicosa*.
with dark yellow-brown forewings with 3 black costal spots, transverse lines delicate but very distinct, the
subterminal line being more widely black especially at costa and inner margin, so that a spotted effect is created.
Reniform stigma black. Hindwings dark blackish yellow at base; posteriorly to the paler central band, the
wing is dark blackish. Corsica at an altitude of 1300—1400 m. — **inconspicua** *Bllr.* is illustrated in Main Volume *inconspicua*.
on pl. 68 d, but not mentioned in the text. It is larger and darker than *ligaminosa* and also *praeligaminosa*,
which is almost identical, but both of these are more greenish grey. From Japan and Corea. — **caucasica** *Herz* *caucasica*.
most closely resembles *maculifera*, it is a pale reddish grey form with black streaks before the outer margin;
caucasica is smaller and more daintily built and paler grey. It is a transition form to *subligaminosa* and is very
similar on the underside with a wide, black, sharply outlined outer marginal band, however it is still more
silky glossy with a yellowish sheen. Caucasus.

A. limbata *Stgr.* (Vol. 3, p. 371, pl. 68 c). As the illustration of this very variable species is not perfectly *limbata*.
satisfactory, we are illustrating afresh here an armenian specimen (24 a). *limbata* has a very difficult group of
forms, which will one day have to be carefully checked. For instance, AMSEL has ascertained that in — **obscurata** *obscurata*.
Stgr. from Djarkent, the genitalia are completely different, so that it must be deemed a genuine species. Super-
ficially it looks almost exactly like *draudti* from Marash, described by OSTHELDER. This also shows a completely
different construction of the genitalia and was meanwhile classified with *Dasythorax* (vide p. 147 of this Supple-
ment), although without a doubt, it is very closely related to the *Autophila* species. All those specimens from
Spain and Algeria, that have hitherto been designated as *limbata*, appear to be *dilucida* forms; *limbata* appears
to be a purely eastern species, that also occurs in Palestine and Syria. The original specimens ex collection
LEDERER from "Grusia" (Caucasus) have been submitted to me. — **luxuriosa** *Zerny* (= *einsleri* *Amsel*) (24 a) *luxuriosa*.
is a *limbata* form with paler, almost golden yellow ground colour and intensively black and heavy markings,
so that the very dentate lines are especially prominent. This is certainly a *limbata* form, as all grades of transition
are found. The form *luxuriosa* seems to be the only form occurring in Palestine. Lebanon. BANG-HAAS advises
that similar specimens are to be found at Hadjiabad and Hyrkania. — **parnassicola** *ssp. n.* is the name I give *parnassico-*
to a form submitted to me by BANG-HAAS ex the collection of STAUDINGER and which was obtained by KRÜPER *cola*.
in Greece (Parnassus); the wings are remarkably wide, dull ochreous grey, less glossy, more evenly speckled
with dark dusting, very pale dull grey markings. Marginal area barely darker, the sharply intruding dentations
of the inner subterminal shade are completely absent, otherwise everything as in typical specimens. Perhaps
this is a separate species.

libanotica.

A. libanotica Stgr. (Vol. 3, p. 371). According to ZERNY this is certainly a genuine species, but the diagnosis given by WARREN in the Main Volume, is not applicable to it. Forewings bright pale rusty yellow differing in consequence in a striking way from all other *Autophila* species. Hitherto only known to occur in the Lebanon district — the specimens alleged to have been obtained in Algeria and Morocco and described as *libanotica* have nothing in common with this species.

depressa.

A. depressa Pglr. (24 b) is not so wide in the wing as *cataphanes*. Forewings ashen grey, transverse lines diffuse, wide, the antemedian is fairly straight, interrupted, approximating closely to the posterior transverse line at inner margin; the latter line is of the customary form, slightly dentate at top, bending sharply inwards below the cell and then proceeding almost straight to inner margin. Central shade wide, diffuse, almost completely covering the reniform stigma. Marginal area somewhat darker and without a distinct submarginal line. Fringes long with yellowish basal line. Hindwings ashen grey, scarcely paler at base, no paler central band. Underside yellow-grey, no discal spots, with very diffuse arched line and dark marginal band. It is very similar to and apparently closely related to the much darker *Dasythorax draudti* Osth. Askhabad.

lia.

A. lia Pglr. (24 b). Closely resembles the preceding species, but is much larger. Forewings yellowish grey with ashen grey markings. The antemedian is more dentate and somewhat oblique. The central shade is wide, straight and diffuse. The postmedian is marked as in the other species. Reniform stigma is a dark angulated spot, both the other stigmata are absent. A faint yellowish crenulate subterminal line in the grey marginal area. Fringes yellow-grey with yellow basal line. Hindwings yellow grey, paler towards the base, with faint discal spot reflected through and yellowish fringes spotted with grey. From E. Turkestan (Aksu; Korla). It cannot be mistaken for any other species owing to its much greater size.

praeclara.

A. dilucida Hbn. (Vol. 3, p. 371, pl. 68 d). — **praeclara** Schaw. The dark blackish grey marginal area is missing and therefore the specimens appear much paler, more uniformly greyish yellow with rudimentary transverse lines and central shade. From Herzegovina. — **argentea** Car. (24 b) is a pretty whitish silvery grey form, with almost whitish body. Markings faint and with delicate transverse lines, but bold blackish marginal band and distinct pale subterminal line therein. Rumania (Silver coast).

subfusca.

A. subfusca Chr. (Vol. 3, p. 371). This was classified in Main Volume as a form of *dilucida*, but it is certainly a genuine species, that is not connected with *dilucida*. OSTHELDER was the first to propound this and AMSEL has illustrated the genitalia showing the great divergence from *dilucida*. WARREN's diagnosis seems to be incorrect. According to CHRISTOPH's description this is a pale ochreous species, marked in the same way as the others with very wide dark marginal band, but without a distinct subterminal line. Its general structure is much smaller and more dainty than *dilucida*. Hindwings with extinct central and marginal bands. The originals, ♀♀ were described from Germob, Tekke and Ordubad. OSTHELDER mentions an identical specimen from Sumbar, Transcaspia, in the collection of STEGER, which is probably the specimen that AMSEL has been able to examine. We are illustrating a specimen that KORB brought back from an expedition to Konia, Anatolia, and which must undoubtedly be classified here (24 b).

cerealis.

A. cerealis Stgr. was omitted from text in Main Volume, but illustrated on pl. 68 d. As this illustration was unsatisfactory, we are giving a better picture here (24 c). This is a variable, small and relatively narrow winged species. Ground colour reddish, yellowish or pale ashen grey, with dark dusting. The wide but somewhat indistinct transverse lines are formed as in the other species, all originating from bold black costal dots. The central shade is more exactly in the middle between the two transverse lines, forming an almost acute angle towards the reniform stigma. Orbicular stigma is a dark dot, reniform a small crescent. Marginal area is dusky with a pale, boldly dentate subterminal line, that has a very dark inner edge. The pale grey hindwings are faintly but widely dark towards the margin. Fringes whitish. Syria, Palestine, Pontus (Mardin), Erivan, Tura, Thian shan. The type emanates from Damascus and BANG-HAAS was kind enough to submit it to me for examination. — **rosea** Rothsch. According to its author this is the reddish form from Algeria and Tunis and the genitalia are identical with those of *cerealis*.

amseli.

A. amseli sp. n. (24 c) is so similar to the preceding that it can be mistaken for it. AMSEL first showed that it varied considerably in the genitalia. On an average it is somewhat smaller, structure is more dainty, it is more thinly scaled. Apex of forewings is slightly more rounded and the wings are rather wider. Transverse markings more delicate, subterminal line less prominent and distinct. From Taurus (Marash) and also from Akshehir. BANG-HAAS has sent me a similar specimen from Shahkuli (Persia).

vespertalis.

A. vespertalis Stgr. (24 c) was also omitted from Main Volume. I have before me the original specimens kindly lent me by Mr. O. BANG-HAAS. Shape of the wings is as in *cerealis*, but apex of forewings is more protracted. The wings are oily glossy impure sandy grey with very obsolete darker transverse markings, the most distinct of which is the boldly dentate antemedian and the narrow crescentiform dark reniform stigma; it has a paler surround and is larger and longer than in any other species. A paler subterminal line is rather indistinct. Fringes pale yellow-grey. Hindwings very glossy, pale yellow-grey, faintly darkened before the outer margin, as in *dilucida*. The grey-yellow underside is still more glossy and quite devoid of markings, faintly darker at margin. Antennae remarkably long, $\frac{4}{5}$ ths of length of forewings with fairly long pectinations as

in *Dasythorax hirsuta*. Abdomen very sleek and thin. Wing expanse: 36—41 mm. Uliassutai, also from Aksu, the specimens from the latter locality rather more boldly marked.

A. gracilis *Stgr.* was illustrated in Main Volume on pl. 68 d, but omitted from text. It belongs in the *gracilis*. same group, but has rather wider wing contour. Darker than *cerealis*, very characteristic by the regularly spotted black and white costa, which consists of 9 white and 9 black spots. Otherwise forewings pale reddish yellow-grey, densely peppered with blackish. Antemedian is interrupted, it is formed of a costal spot, a spot below the cell and an angulated hook with its point towards the margin and which is placed on the inner margin. A few black scales indicate a punctiform orbicular stigma. Reniform is a small black lunule filled with white or ochreous redish. The posterior, boldly dentate transverse line is as in the other species, proceeding inwards towards the reniform stigma on vein 3, projecting outwards acutely on submedian fold and again under vein 1, where it has a pale outer edge. Subterminal line is boldly and irregularly dentate, it has a heavy dark inner shade and forms quadrate projections between veins 6 and 7, 3 and 4 and again at anal angle; it also has a pale outer outline. Bold black marginal spots tipped with white outwardly. Fringes yellowish grey-white, slightly darker at base and with faint checks. Hindwings grey-brown with white fringes, indistinct central shade, widely dark at margin. Underside whitish with bright silvery sheen, costa of forewings regularly marked with black and white on costa, wings widely darkened with grey-brown at margin. Fringes grey-yellow, interspersed with blackish. Hindwings flecked with grey-brown also towards costa. Fringes more whitish than on forewings, with faint yellowish basal line. From Transcaspia: Aksu, Lob-Nor, Kashgar. As the illustration was unsatisfactory, we are giving a fresh picture here (24 c).

21 a. Genus: **Crypsotidia** *Rothsch.*

Contour of wings about the same as in the latter species of the preceding Genus. Proboscis developed: antennae simple, shortly ciliate in ♂, palpi coarsely hairy and down turned, with short terminal segment. On underside at base of forewings, a tuft of hair with a similar tuft at inner marginal base of hindwings. Cell of forewings elongate, veins 3, 4 and 5 arising close together. On hindwings 6 and 7 stalked. HAMPSON classified these next to *Ecclita* in the *Catocalinae*. Only 1 species:

C. maculifera *Stgr.* (= *wollastoni* *Rothsch.*) (24 b). This species was not mentioned in Main Volume. *maculifera*. Forewings pale reddish yellow, peppered with blackish. Subbasal distinct and dark. Only a costal spot and vestiges of an anterior transverse line are present, but there is a large deep black-brown spot attached to it on inner margin and which has a slightly pale outer outline. The outer transverse line is formed in quite the same way as in *Autophila* species, it reverts inwards to before the small dark reniform stigma. Marginal area is more heavily darkened with distinct pale subterminal line, sharply distinct whitish dots on margin. Hindwings impure white, dusky towards margin. The species was first described as *Hydrilla*, but it belongs in closest proximity to the *Autophila* species. Palestine, Egypt to the Soudan.

24. Genus: **Toxocampa** *Guen.*

T. glycirrhizae *Rmbr.* (Vol. 3, p. 372, pl. 68 e). — **alfacaria** *Ribbe* denotes specimens with paler colour- *alfacaria*. ation, the mark on disco-cellular of forewings is absent. Sierra de Alfacar. Perhaps the name denotes the same form as mentioned in Main Volume, as having the pale olive obscure reniform stigma.

T. craccae *F.* (Vol. 3, p. 373, pl. 68 f). — **perstrigata** *Rbl.* from Transylvania is more grey than brownish; *perstrigata*. it has very prominent transverse stripes. — **caliginosa** *Schaw.* from Corsica (Col de Vizzavona) is much darker *caliginosa*. than typical specimens, especially the forewings are dark bluish grey in basal and median areas, the veins appear faintly paler. Hindwings and undersides are deep dusky blackish. — **plumbea** *Bankes* from England is still *plumbea*. darker, the wings are almost leaden black.

T. moellendorfi *Herz* has narrow and more elongated forewings than *lusoria*, which it otherwise closely *moellendorfi*. resembles. The reniform stigma also has a dark centre, but it is not so wide at its lower end, whilst on the other hand it extends upwards in a streak to the costa. The outer marginal third of the wing is dusky brown and veins have no whitish scales. Hindwings grey-black, somewhat paler at base. Wing expanse: 36—38 mm. Corea.

T. stigmata *Wilem.* Forewings grey with faint violet tinge, peppered with brownish and with brown *stigmata*. lines and reniform stigma. The anterior transverse line is almost straight, diffusing towards inner margin. The posterior transverse line expands towards costa. Between the two, an undulate central line, that becomes diffuse below reniform stigma. Outer margin faintly sinuate. On margin in interstices between veins, black dots, with white inner edges to the upper ones. Hindwings grey-brown. Wing expanse: 44 mm. Hakodate, Yezzo, Japan.

T. ichinosawana *Mats.* (24 c) should be classified after *recta* *Brem.* (Vol. 3, p. 374, pl. 68 g, h). It closely *ichinosawana*. resembles the latter. The antemedian of forewings is much closer to base, the central line is expanded, bending

outwards on the submedian fold and extending to the second third of inner margin. Postmedian is quite absent, subterminal line widely dark at costa. Scapulae are white and very striking. Wing expanse: 40 mm. South Saghalin.

decolor. **T. decolor** *A. B.-Haas* seems to be most like *limosa* (Vol. 3, p. 374, pl. 68 g). It is a small and insignificant species. Forewings pale ochreous, merging into grey, speckled with blackish on costa. Reniform stigma only very faintly indicated. Transverse lines and stigmata are barely discernible. On margin faintly darker lunules. Fringes with paler dividing line. Forewings fairly narrow at outer margin. Head, thorax and scapulae yellowish grey, speckled with whitish, collar barely darker than forewings. Hindwings grey-yellowish, slightly darker at margin. Wing expanse: 34 mm. Described from a pair from Yarkend (Mustagata).

innocens. **T. innocens** *Krul.* is possibly a form of *lubrica* *Frr.* (Vol. 3, p. 373, pl. 68 f). Forewings dark grey on upperside with faint violet sheen. Two black spots on costa. Reniform stigma brownish black with dark dots outwardly, as in *viciae*. A black-brown subterminal shade as in *pastinum*, somewhat more distinct at costa. Margin without any black dots. Fringes grey with scarcely distinguishable dividing line. Hindwings grey, paler at base and inner margin. A yellowish marginal line before the grey fringes. Body and legs, vertex and collar velvety black. Urshun.

vulcanica. **T. vulcanica** *Btlr.* (Vol. 3, p. 374). According to FILIPJEV this species also occurs in the S. Ussuri territory.

28. Genus: **Catephia** *O.*

uniformis. **C. alchymista** *Schiff.* (Vol. 3, p. 376, pl. 68 i). — **uniformis** *A. B.-H.* has quite unicoloured black forewings, also the usually brownish reniform and marginal areas, are deep black. Underside is also darker, the *minor.* white spot at anal angle is smaller, the fringes almost unicoloured black. Tunis (Ain Draham). — **minor** *Hartig* is the much smaller second generation from the Sarca valley, occurring at end of September.

stygia. **C. stygia** *Hamps.* Head and thorax black-brown with a few white scales. Forewings black-brown, somewhat dusted with grey with black transverse lines, the anterior one obliquely to mediana, the posterior line incurved on discal fold. Large claviform stigma is black, the upper stigmata black with slight white surrounds, some white dots on outer edge of reniform stigma, the dark sinuate subterminal very indistinct. Hindwings white, brownish at inner margin, marginal area widely dark brown, base of fringes white. Wing expanse: 32 mm. W. China. Chiao-pinse.

29. Genus: **Anophia** *Guen.*

albomaculata. **A. albomaculata** *Draes.* (25 g). This resembles *leucomelas* *L.* (Vol. 3, p. 376, pl. 68 i). On forewings the outer white markings of reniform stigma are much more prominent and occasionally there is a triangular pure white spot behind claviform stigma between veins 1 and 2, which can sometimes however also be diffuse. On hindwings the subapical and submedian white areas are absent. Szechuan (Omei-hsien, Kuan-hsien).

41. Genus: **Thermesia** *Hbn.*

arefacta. **T. arefacta** *Swinh.* Of this species, that occurs only in the Indian territory, a form — **messrae** *Stgr.* *messrae.* (24 d) occurs in Palestine. Forewings ochreous to buff brownish with grey transverse lines, that expand to wide bands posterior to centre and in marginal areas, the anterior line has a pale outline outwardly. The lines in basal area are indistinct and obsolete. Both cell stigmata are punctiform, the reniform is usually somewhat larger with pale centre. In marginal area there are two delicate dentate lines with an intermediate row of dots. Hindwings yellowish or whitish grey, impure ochreous in marginal area, frequently with a double dark band therein. In inner marginal area there are traces of the commencements of 3—4 transverse lines and a dark spot *elegans.* near base. From the Messra peninsular and in the valley of the Jordan. — **elegans** *Stgr.* is a paler yellowish form with still fewer markings and extinct transverse lines. There are however all grades of transition between the one and other of these forms. South Palestine.

46. Genus: **Calpe** *Tr.*

centralitalica. **C. capucina** *Esp.* (Vol. 3, p. 382, pl. 70 a). — **centralitalica** *Dhl.* is a very large pale yellow form without the olive brownish tone. The larva is very different from the usual green larva with a few black spots. It is greenish white or completely white with wide black longitudinal bands and rows of dots. Central Italy (around Sulmona in the neighbourhood of the Alban and Nemi lakes).

albivirgata. **C. albivirgata** *Hamps.* Head and thorax brown admixed with white. Frons streaked with white, collar with white and anteriorly brown line. Forewings brown, suffused with silvery grey and striated with white. A fine white streak below costa to beyond centre. Subbasally obsolete oblique stripes before and in the centre. An oblique brown streak at disco-cellular with black spots at both angles of cell, the veins posteriorly darkly streaked. From apex to beyond centre of inner margin there is an oblique brown line with fuscous outer edge. Behind it

there is an oblique shade from vein 2 to inner margin with a second similar shade from vein 6 to anal angle. Hindwings brown with faint postmedian and subterminal shades. Wing expanse: 64 mm. Japan (Yokohama); W. China (Omei-shan).

51. Genus: **Acantholipes** Led.

A. regularis Hbn. (Vol. 3, p. 385, pl. 70 b). — **hilaris** Schaw. (24 d) denotes a very pale unicoloured buff *hilaris*. form having no contrasting black or yellow markings. From Aksu and also from Askhabad.

57. Genus: **Anumeta** Wkr.

A. atrosignata Wkr. (Vol. 3, p. 387, pl. 70 c). According to ROTHSCHILD *atrosignata* together with *spilota atrosignata*. Ersch., *henkei* Stgr., and *harterti* Rothsch. (Vol. 3, p. 388) are all forms of one variable species, which is very likely the case. The last named form is the one illustrated on pl. 70 d of Main Volume. The description, however, that WARREN gave refers to another form, described by ROTHSCHILD as *major*. — **harterti** differs very little from *atro-* *harterti*. *signata* and is only a subspecies occurring in Algeria. Generally it is somewhat smaller on an average, the space up to the postmedian is somewhat darker brown. The postmedian itself is not undulate. Hindwings somewhat more yellowish. It occurs from February to May.

A. major Rothsch. As remarked in the preceding species, this is another, much larger species, to which *major*. the description under *harterti* is applicable (Vol. 3, p. 388), but not the illustration on pl. 70 d. The black spot in hindwings stands free in the white patch and this is characteristic of *major*, whilst in the illustration it merges, like in *spatzi*, with the brown shaded band.

A. spatzi Rothsch. Head, thorax and abdomen are pale reddish-yellow-white in contrast to the brown *spatzi*. and grey head and thorax and yellow-white abdomen of *major*. Forewings reddish sandy grey with 2 stripes on costa, a wide stripe from base to cell end along the mediana and a broad deeply dentate postdiscal pale brown band with reddish white outer outline. Black subapical spot and a marginal row of black cuneiform marks. Hindwings white, widely grey brown at margin with a white subterminal spot having an oval or quadrangular black spot therein. The ♀ is darker and more distinctly marked. Wing expanse: 45—48 mm. Algeria, April and May.

A. azelikoula Dumont (24 d) is very close to *harterti*, but paler and with more variegated colouration. *azelikoula*. The cuneiform subterminal spots are absent. Subterminal line is interrupted and not so regularly undulate. Thorax fuscous, abdomen paler. Forewings reddish ochreous, peppered with black. A black longitudinal streak through the cell conjoins both transverse lines. The anterior line is twice acutely angulated. Posterior to the pale or whitish subterminal line there is a fine, undulate black marginal line and before it minute black marginal dots tipped with white. Reniform stigma is black brown and from it an obsolete central shade extends to inner margin. The postmedian area is paler. At apex there is a black spot intersected by vein 8, that is paler. Hindwings white with 2 brownish transverse shades and a black marginal line, anterior to which is a round velvety black spot. The larva is yellow with white mottlings and violet-red bands. lines and spots. It feeds on "Azal", the arabic name for the food plant. Wing expanse ♂ 31, ♀ 38 mm. El Golea, Biskra.

A. cestis Mén. (Vol. 3, p. 388, pl. 70 e). The typical *cestis* is purely a desert species and occurs in the *cestis*. sand dunes of the Sahara. The algerian form — **parvimacula** Rothsch. is less robustly built, in large series *parvimacula*. the markings appear to be slightly different and the dark spots on hindwings are smaller and generally subdivided into 3. In south Oran the dark form *uniformis* Warr. also occurs.

A. comosa Dumont closely resembles *A. cestis*, but is smaller. Forewings reddish grey, peppered with *comosa*. brown with dentate black antemedian and brown postmedian with whitish outer outline. Subterminal line only distinct between vein 4 and inner margin and there it is edged outwardly by a brilliant whitish ochre. Marginal line is formed of black interneural lunules. Fulvous fringes are checked with brown between the veins. Hindwings ochreous whitish with a wide brown subterminal band, that is darker in centre and expands towards the outer margin. The marginal line consists of dots, in *cestis* of cuneiform marks. Algeria (Biskra; el Golea). From March to May and in October.

A. surcoufi Dumont. Body yellow-white, forewings of the same shade, peppered with brown. Transverse *surcoufi*. lines are only indicated and originate from black-brown costal dots, the posterior line from a brownish spot. Reniform stigma slightly darker ochre, only faintly indicated. The brownish subterminal line is obsolete, apex rather duskier. A quadrangular black subterminal spot and a black-brown apical spot before the undulate brown marginal line, that is marked with black between the veins. Hindwings white with faint yellowish hue; a pear-shaped black spot intersected by the brown central band is situate between veins 2 and 5. The ♀ is inclined to reddish ochre. Sahara (Hadadra, Saadana, el Golea). September and Oktober.

A. hilgerti Rothsch. (Vol. 3, p. 389, pl. 70 f). The illustration was not good and we are giving a better *hilgerti*. one of a ♂ here (24 c).

58. Genus: **Aleucanitis** Warr.

HAMPSON gives the older name: *Syneda* Gn. for this Genus and this is presumably correct. It contains a number of north american species.

- flexuosa.* **A. flexuosa** Mén. (Vol. 3, p. 389, pl. 70 g). A very pale yellowish grey specimen, that would seem to correspond to *singularis* Koll., is before me from Cairo and therefore the species also occurs in north-eastern Africa. The specimen is illustrated (24 d). The occurrence there, is not so very surprising, as the species occurs in Palestine.
- albofasciata.* **A. albofasciata** John is most closely related to *flexuosa* and *sinuosa*, but can be easily differentiated from both by the pure white colour of the central band. Head and thorax white, scapulae and collar brown, abdomen and underside whitish. Forewings umbra-brown with the usual central band in pure white or cream colour and with a similar apical spot. The inner transverse band with faintly and evenly undulate edges. The outer edge of the central band is obtusely angulated, the inner edge is straight. Subterminal line absent. Hindwings white with wide black transverse band and a black spot in outer angle and 2 black striations on veins. S. E. Persia (Mekran); Beluchistan in February.
- pamira.* **A. pamira** John resembles *cailino*, but is larger. Basal lines bend inwards at inner margin. Basal area unicoloured grey with darker shadings. The grey central band is constricted above inner margin; the area between it and the subterminal line is grey-brown with distinct sagittate marks. Subterminal line boldly undulate and very prominent and distinct. Hindwings with brownish tone, veins and discal lunule duskily dusted, the outer transverse band dull brown with more or less obsolete submarginal band. The cilia of the ♂ antennae are somewhat longer than the diameter of the shafts. Length of forewings: 19—20 mm. Pamirs in June and July.
- habibazel.* **A. habibazel** Dumont (24 d) resembles *Drasteria oranensis* Rothsch. Head and thorax pale yellow-reddish, abdomen more whitish. Forewings rusty yellowish, speckled with brown and black, with large white reniform stigma having a brown surround. Basal area darker, edged outwardly by the double black antemedian line. Central area traversed by 2 parallel brown lines. The postmedian line arises at $\frac{3}{4}$ of costa from a long black spot, circumscribes the reniform stigma and proceeds almost vertically to inner margin. The subterminal line also originates at a black preapical spot and has black sagittate marks anteriorly on veins 5—8. Hindwings white with wide black marginal band containing 3 yellow-white small spots. Tozeur (Tunis) in September. The grey larva has reddish lateral spots over the dorsum and blackish subdorsal line with white ventral colour dotted with reddish. It feeds on *Caligonum comosum* and hides in the earth by day, in May.
- clarior.* **A. cailino** Lej. (Vol. 3, p. 391, pl. 70 i). A very pale form has repeatedly been captured in Asia Minor (Marash and Akshehir) with very wide, almost whitish central band. Also the hindwings are much purer white and the marginal black thereby much reduced, but a deeper and purer black. I denominate this form — **clarior**
- baigakumensis.* **A. baigakumensis** John is smaller than the european form, otherwise markings and colouration are the same. The marginal area is slightly narrower than in *cailino cailino*, the subbasal is closer to base and is angulated twice at a rightangle. Hindwings with wider, deeper black outer band, the white anal spot being much smaller. Length of forewings: 15—16 mm. Turkestan, Syr Darja; Ferghana (Namangan).
- austera.* **A. austera** John outwardly resembles *L. picta* and *chinensis*, but is an *Aleucanitis* as the tibiae have no spurs. It differs from *chinensis* by the less uniform colouration, by unicoloured bands with barely discernible lines therein, by the central band that projects less outwardly. Hindwings are more of a brownish tone with duller transverse band, no white apical spot, and a more yellowish underside. Head and thorax are yellow, admixed with brown, abdomen grey-brown. Forewings are relatively elongate and narrow, dull brown with the same markings as the *picta* group, the central band is very wide, not contracting towards the inner margin. It is somewhat paler than the ground, the outer edge is straight, the inner edge is faintly arched each side of the mediana. Hindwings as in *picta* and *chinensis* with dull transverse band and conjoined lunular marks. The spots on outer margin are very small and isolated, the inner marginal half is shaded with brown. Wing expanse: 31 mm. Persia and Beluchistan.
- herzi.* **A. herzi** Alph. (Vol. 3, p. 391). We are now able to give an illustration (24 e) of a specimen from Aresh.
- angustifasciata.* — **angustifasciata** Amsel are smaller specimens (33—35 mm) of paler colouration and less developed black marginal band to hindwings and black band on underside of the wings. Palestine.
- kusnezovi.* **A. kusnezovi** John (not Johns) (Vol. 3, p. 391). Here also we are giving an illustration (24 e) of a typical specimen from Baigakum (Syr Darja).
- judaica.* **A. judaica** Hmps. (24 h). Head and thorax are yellowish white, admixed with fuscous, collar is streaked with brown, palpi with 2 lateral brown spots. Forewings yellowish white, suffused with red-brown anterior to antemedian and postmedian, also in central area behind the cell. Marginal area is dusted with bluish grey. Antemedian is double, the inner line faint and brown, the outer line black, angulated inwards on vein 1. The brownish reniform stigma has a black surround, narrow on top, expanding somewhat below. Postmedian is black and angulated outwardly on veins 6, 4 and 3, then bending backwards in an arc directed downwards to

below the reniform stigma and from there bulging obliquely to inner margin. Posteriorly there is a faint brown line. The subterminal is white with blackish dentations inwardly, with brown outer outline from costa to vein 4 and obliquely to apex. Hindwings white, brownish in anal area with brown discal streak and veins posterior to lower angle of cell. A wide black-brown subterminal band, that projects subapically and between veins 4 and 2 to the margin. Palestine (Jerusalem). This rare species can easily be mistaken for *nezovi*, or *cutilino* and is thus perhaps frequently overlooked.

A. sesquilina Stgr. (Vol. 3, p. 392). An illustration is given of a specimen from Aksu (24 e). *sesquilina*.

A. sculpta Pglr. (Vol. 3, p. 392). A specimen from the PÜNGELER collection is now illustrated (24 e). *sculpta*.

A. aksuana Pglr. (Vol. 3, p. 393). An illustration is now given of a specimen in the PÜNGELER collection (24 e). *aksuana*.

59. Genus: **Armada** Stgr.

A. panaceorum Mén. (Vol. 3, p. 393, pl. 70 k, l). — **distincta** Rothschild. is much paler than the typical form *distincta*. and the markings of forewings are more distinct. The white spot in black band of hindwings is also much larger. Between El Arish and Oued N'ça (Algeria) in April.

A. dentata Stgr. (Vol. 3, p. 393, pl. 70 l). — **nilotica** A. B.-H. in contrast to the typical ochreous specimens, *nilotica*. has brilliant pure white ground colouration, so that a similarity to *huebneri* is created. It does not vary otherwise either in markings or size. Cairo.

A. eremophila Rbl. (Vol. 3, p. 394). The illustration and description do not refer to this species, which *eremophila*. more closely resembles a small *Aedia funesta*, but to the following species. Dr. ZERNY has been kind enough to draw my attention to this. According to him the following are synonymous with *eremophila*: *lacroixi* D. Luc. and *costiplaga* Warr. (Vol. 3, p. 397, pl. 74 c). We are now giving an illustration of a specimen from Meadi (24 e). According to ZERNY the Genus *Metoponrhis* (Vol. 3, p. 396) cannot be justified and the species should be classified with *Armada*.

A. afghana Hmps. (= *eremophila* Warr. nec Rbl.). This is the species described and illustrated as *eremophila*. *afghana*. in Vol. 3, p. 394, pl. 70 l. The type from Afghanistan (Safed Kuh) is in the collection of LORD ROTHSCHILD. The species however may also occur on palaearctic territory.

A. turcorum Zerny is smaller than *albirena* Christ. (Vol. 3, p. 396, as "*Metoponrhis*") with much paler *turcorum*. ground colour, the pale discal spot is more precisely circular, the transverse lines less sharply dentate. Hindwings much paler at base, darker towards the margin. The transverse line is less distinct and further removed from margin. Length of forewings: 10 mm. Described from Haifa, but also occurring on the dunes around Tel Aviv in March and April.

64. Genus: **Imitator** Alph.

I. ciliaria Mén. (Vol. 3, p. 396). The reference to pl. 74 a was incorrect, as the species was not illustrated. *ciliaria*. This is being done now (24 f).

I. palpangularis Pglr. (Vol. 3, p. 396). The species is not named "*palpangularia*". An illustration is now *palpangularis*. given (24 f). It is very close to the preceding species, but has narrower and more pointed forewings. These are also more heavily admixed with white and have more distinct markings and more boldly dentate lines. The name was omitted from the List of Palaearctic Noctuae with reference to original descriptions. The reference is Iris 14, p. 178, pl. 3, fig. 12.

67. Genus: **Acrobyla** Rbl.

A. kneuckeri Rbl. (Vol. 3, p. 397, pl. 75 l). The name for this species was incorrectly given as "*kuenckeri*" *kneuckeri*. in Main Volume. Besides the reference to plate was omitted. It is close to *Metopoceras canteneri* Dup. both generically and specifically. In consequence of the origin of the bold vein 5 of hindwings below the centre it is certainly a *Noctuinae* and in all probability should be classified here, vide p. 126, pl. 16 f of this Supplement.

69. Genus: **Laspeyria** Germ.

L. flexula Schiff. (Vol. 3, p. 398, pl. 71 b). — **albina** Wehrli is pale yellowish white on forewings with *albina*: distinct markings. Also the underside is paler with very clear marginal dots. Described from Switzerland.

70. Genus: **Colobochyla** Hbn.

C. inquinata Led. (Vol. 3, p. 398, pl. 74 a). This is not a *Noctuinae*, but certainly an *Erastrianae*, according *inquinata*. to ZERNY. He has created for it the Genus: — **Tephrochares** Zerny, which should be classified next to the Genus *Cerynea* Wkr. Its characteristics are the well developed proboscis, the palpi which extend obliquely upwards far over the frons and the densely scaled frons. ♂ antennae are ciliate, thorax without tuft and broadly scaled. On forewings vein 6 arises below the upper angle of cell, areola is present. On the widely rounded hindwings,

veins 3 and 4 are with short stalks, 5 is fully developed, 6 and 7 arise from one point. According to the classification of the Main Volume, it should be placed before the Genus: *Oruza* Wkr. as 13 b (Vol. 3, p. 271). The illustration in Main Volume has no resemblance at all and we are therefore illustrating the species afresh (24 f). ZERNY captured a few specimens in the Lebanon (Becharré), at the end of June and early July. I have also received some from the Amanus mountains.

71. Genus: **Parascotia** Hbn.

- magna*. *P. fuliginaria* L. (Vol. 3, p. 399, pl. 71 b). — **magna** Dioszeghy is a very large form (28 mm) with yellowish white wings, the forewings densely dusky at costa and sparsely dusted from base to posterior transverse line. Marginal area to subterminal shade devoid of dusting except for the veins and the margin itself. Hindwings coarsely and densely dusted with very distinct marginal line and pronouncedly checked fringes. From the southern Carpathians (Retyezat mountains).
- detersa*. **P. detersa** Stgr. (Vol. 3, p. 399, pl. 74 b). The illustration was unsatisfactory and we are giving a better one here (24 f).
- robiginosa*. **P. robiginosa** Stgr. (Vol. 3, p. 399, pl. 74 c). The illustration is also unrecognisable. We are illustrating a specimen from Akshehir (24 f). •
- nisseni*. *P. nysseni* Trti. (Vol. 3, p. 399, pl. 71 c). The name should be “**nisseni**”.
- nigricans*. **P. nigricans** Mats. is said to resemble the black form *carbonaria* Esp. of *fuliginaria*, but perhaps it should be placed in a new Genus, as the antennae are not serrate, but simple and ciliate. Wings black, posterior and subterminal lines indistinct, much more widely separated from one another than in *fuliginaria*, the latter line is disintegrated into numerous small dots. The two bands of hindwings are also barely discernible. Underside dark grey, central area of forewings duskily suffused, a yellow spot in centre of costa, posterior to this a row of yellowish dots with black discal streak. Hindwings with paler arched band in centre, that has a darker inner edge. There is a paler subterminal band. The black legs are yellow inwardly. Wing expanse: 24—28 mm. S. Saghalin. End of July.

72. Genus: **Epizeuxis** Hbn.

- pokornyi*. *E. calvaria* F. (Vol. 3, p. 400, pl. 71 c). — **pokornyi** Sterneck has monotonous brown forewings devoid of black and white markings, and no ochreous stigmata. Described from Czecho-Slovakia. — **plaisanti** Schaw. are dusky specimens, in which the basal, postmedian and subterminal blackish dentate lines are merged in the black ground colour. Also the white edgings of the transverse lines are absent except for 2 white costal spots. Stigmata ochreous. From Corsica.
- lunulata*. **E. lunulata** Herz resembles *curvipalpis* Btlr. (Vol. 3, p. 400, pl. 74 b), but it has a more pointed wing contour and more oblique margin. Reniform stigma is still smaller, crescentiform, with yellow centre. Orbicular stigma is only a yellow dot. Colour dark brown, no faint purplish reflection, the whitish dentate marginal only distinct in its upper half. The whitish central band commences above the reniform stigma, then very dentate, dark brown to inner margin. Hindwings brown with 3 slightly undulate transverse bands. Wing expanse: 23 to 25 mm. Corea.

73. Genus: **Prothymnia** Hbn.

- purpurina*. *P. viridaria* Cl. (Vol. 3, p. 400, pl. 71 d). — **purpurina** Vorbr. has red colour extended right to base. *hoffmanni*. Described from a specimen from Zürich. — **hoffmanni** Stdr. Base of forewings buff, the outer part from central band is claret red, the division of the outer area by a band of ground colour is missing. Hindwings also much paler than type form. From around Trieste. — **faecata** Stdr. is monotonous dull pale buff with almost completely extinct bands. Innsbruck. — **lutaigira** Schaw. is larger, ochreous with diffuse markings, a faint darker basal transverse line, a reddish band in centre and paler subterminal line. Hindwings with 2 brown bands and dark outer margin. In ♀ the central band and outer marginal area are deep red. Algeria (Bone).
- aurantiacus*. *P. sanctiflorentis* Bsd. (Vol. 3, p. 400, pl. 71 d). — **aurantiacus** Rothschild is larger and has orange-red ground colour, suffused with fuscous in outer half. From Tunis in July.
- luna*. **P. luna** Zerny (24 f) is much smaller than *sanctiflorentis*, it has much darker colouration on upperside of wings with a less intensive yellow-red underside. Genitalia differ. Forewings sooty brown on upperside, dusted with olive and very indistinctly marked. The darker central area is edged outwardly by a wide paler transverse band; this is bisected by an indistinct dark shade. The edges on both sides are faintly undulate. At close of cell 2 dark spots, the one above the other and both with slightly paler surrounds. Hindwings of same shade as forewings, in outer third there is a wide, pale olive-brown transverse band with a central dark shade. On inner side it has a distinct and straight edge. End of April, early May in south Andalusia (Algeciras).

74. Genus: **Raparna** Moore.

R. discoinsignita Strd. All wings dusky blackish with very indistinct paler undulate transverse lines *discoinsignita*. and indications of black transverse rows of dots and lines; with large deep black very distinctly marked discal spots, that appear round on the forewings but somewhat horizontally elongated on hindwings. On forewings there is a similar smaller spot in centre of cell with a small black transverse streak below it. The postmedian line consists of small black lunules, which in the upper half are outlined outwardly in pale reddish yellow; posteriorly there is a narrow grey transverse band, that is continued over on to the hindwings. At anal angle of hindwings, a rusty yellow longitudinal streak and a whitish angulated transverse line. Wing expanse: 27 mm. Japan (Karapin), in August.

75. Genus: **Pyralidesthes** Warr.

P. inamoena Filipjev resembles *amata* Btlr. (Vol. 3, p. 401) in build. Forewings pale brownish with a *inamoena*. faint reddish hue, speckled with blackish. The only marking consists of an oblique line, which commences on costa near apex and extends to 2nd third of inner margin. It is delicately marked and scarcely perceivable and only slightly paler than ground colour. The long fringes are somewhat reddish with 2 indistinct blackish dividing lines. Hindwings impure white, densely speckled with black. Fringes grey-white with faint dividing line near base. Wing expanse: 18 mm. Minussinsk (Tagarsky Isle), based on a ♀ captured in May.

77. Genus: **Orectis** Led.

O. euprepinata Dhl. On an average half as large as *proboscidata* H.-Schäff. (Vol. 3, p. 402, pl. 74 b), with *euprepinata*. narrower forewings, whitish, finely dusted with brownish. Three fairly large black quadrate spots on costa, the 1st immediately behind base, the outer one inwardly of reniform stigma. The barely visible anterior transverse line proceeds from the former. The posterior transverse line is bent outwardly at top, where it encircles the reniform stigma. Inwardly of the latter there is a bold oval spot. Subterminal line sinuate, diffuse, nebulous and shadowy at costa and inner angle. Distinct black striations on margin. Hindwings slightly paler, dusted with brownish, with diffuse central spot, anterior to which a wide shadowy stripe extends rectangularly to inner margin. Nebulous patches in marginal area. Fringes of both wings faintly checked. Wing expanse: 12—16 mm. Rome, Tivoli, Subiaco in shady, damp localities.

O. massiliensis Mill. (24 g). According to PUENGELER this is a genuine species. It is quite likely that *massiliensis*. it is identical with *euprepinata*, when they would be synonymous. It is smaller and with narrower wings than *proboscidata*, the transverse lines are wider and more distinct, with much larger costal spots and stout roundish reniform stigma. Hindwings paler, less dusted. S. France, Cannes.

80. Genus: **Rivula** Guen.

R. sericealis Scop. (Vol. 3, p. 403, pl. 71 i). — **oenipontana** Hellw. (24 g) is a form that is suffused with *oenipontana*. grey-brown and occurs chiefly in Tyrol and Switzerland, apparently inhabiting woods. — **brunnea** Lamb. with *brunnea*. dark brown forewings. From Belgium. May be synonymous with the preceding. — **laetior** Spul. has more inten- *laetior*. sively brownish yellow forewings. — **limbata** Spul. has forewings coloured dusky grey-brown behind the outer *limbata*. transverse line. Also hindwings are widely dark at margin or completely grey. — **distincta** Roths. is smaller, *distincta*. less yellowish, more reddish. The ♀ on the other hand yellower, the arched band from reniform stigma to inner margin is very distinct and not shadowy. Algeria, May to October. — **albolividalis** Schille is pale yellowish *albolividalis*. white, devoid of markings except for the reniform stigma, in which 2 black dots are situate. Hindwings similarly much paler, almost white. From Strzalkow.

R. tanitalis Rbl. (24 g). I consider this to be a genuine species. It is considerably smaller (wing expanse: *tanitalis*. 16 mm), dull ochreous yellow without any paler patches. In place of the reniform stigma, there are 2 black dots, the one above the other and there is no sign of the grey mark of a stigma between them. Egypt (Alexandria).

84. Genus: **Megazethes** Warr.

Instead of this name (Vol. 3, p. 405) the name: — **Arytrura** John should be substituted, as it was given in 1912, whilst *Megazethes* was only created in 1913.

A. musculus Mén. (Vol. 3, p. 405, pl. 71 e). This fine and large species is distributed much further westwards *musculus*. and is now found to be a genuine european species, as it is known to occur at Uralsk and has been discovered in Hungary.

86. Genus: **Pangrapta** Hbn.

P. flavomacula Stgr. (Vol. 3, p. 409, pl. 71 h). — **robiginosa** Kard. is dull rusty coloured on forewings *robiginosa*. and in marginal area of hindwings, with diffuse paler lines. Orbicular and reniform stigmata indistinct. — **albata** Kard. denotes whitish specimens with delicate anterior and posterior transverse lines. The other lines *albata*.

indistinct, either partially or completely absent. Orbicular stigma barely discernible, reniform stigma faintly outlined, with paler streak in centre. — *turbata* Kard. is monotonous pale grey-brown with diffuse markings, indistinct lines and stigmata. All 3 forms from S. Ussuri, in July.

lunulata. **P. lunulata** Stertz is very similar to *flavomacula* mentioned above, but it is a brighter brown in marginal area of forewings. The outer transverse line commences in centre of costa, describes a sharp arc in the upper half towards the margin and is accompanied by a fainter parallel line, that outwardly encircles the very large quadrangular reniform stigma. The stigma itself is divided into 3 white spots by an angulated streak pointing towards the base. The anterior transverse line is punctiform in its lower part, before it, in place of the orbicular stigma, a distinct brown dot. The dentate marginal line is outlined by dark brown. Beyond the outer transverse line, there is a large pale triangular patch on costa and in the apical area a few white specks outlined in brown in place of a subterminal line. Hindwings are paler, traversed by 2 boldly arched transverse lines, between which and in marginal area, there are sharply prominent crescentiform marks enclosed in brown and of which those in subterminal area are the larger. Wing expanse: 25—26 mm. Amur territory.

90. Genus: **Dierna** Wkr.

timandra. **D. timandra** Alph. (24 g). This pretty roseate species has 3 yellowish transverse lines on forewings and 2 on hindwings. WARREN placed it among the *Geometridae* in the Genus: *Pseudomiza* Btlr. (Vol. 4, p. 328). It occurs from Corea to the southern Ussuri district.

97. Genus: **Simplicia** Guen.

subterminalis. **S. subterminalis** Draes. (24 g) has a somewhat longer 3rd segment to palpi than *rectalis* Ev. (Vol. 3, p. 415, pl. 72 b). The illustration in Main Volume was exaggeratedly large. Otherwise it is similar in structure but half as large as *rectalis*. Forewings quite pale buff with completely extinct transverse lines and small dark reniform stigmatal shade. Subterminal line creamy yellow, almost arising at apex. It is obtusely angulated on vein 6 and slightly bent to inner margin. A very prominent deep dark shade anteriorly. Hindwings paler, subterminal line angulated on vein 2. Szechuan.

98. Genus: **Nodaria** Guen.

dentilineata. **N. dentilineata** Draes. resembles *tristis* Btlr. (Vol. 3, p. 416, pl. 72 c), but is smaller. The antemedian line is angulated inwards subcostally, on mediana and vein 1. A small black lunule at close of cell, the outer line dentate. The blackish subterminal is almost straight with whitish dots on veins posteriorly. These are sometimes expanded, thus seeming to form a pale band. Hindwings grey. Underside glossy pale grey, hindwings with pale dentate subterminal. Szechuan.

99. Genus: **Zanclognatha** Led.

fumosalis. **Z. tarsiplumalis** Hbn. (Vol. 3, p. 417, pl. 72 c). — **fumosalis** Dhl. are very dark, almost black-violet specimens, heavily dusted with speckles of black-brown on all wings, so that the markings are indistinct. Hindwings similarly black-grey. S. Tyrol.

celatrix. **Z. celatrix** Filipj. denominates a very worn specimen, about which even the author says, that nothing can be said about the markings. Ground colour is darker than in *tarsiplumalis*, that is about all that can be said. Genitalia however are so different, that the species can immediately be recognised. The edge of the upper valve has several crenulations whilst in *tarsiplumalis* there is only one narrow long, very pointed spine; penis has a number of small spines at distal end, which do not occur in *tarsiplumalis*. Wing expanse: 31 mm. S. Ussuri (Sutshan), in July.

negligens. **Z. tarsicristalis** H.-Schäff. (Vol. 3, p. 417, pl. 74 g). — **negligens** Dhl. is a more regular bluish grey, not yellow-brown, the dark transverse bands faint or quite absent, the pale transverse band duskier. A smaller second generation. — **biumbralis** Trti. & Ver. has a paler central band, that is edged by the transverse lines, whilst the basal and marginal areas appear to be more violet-blackish. Transverse lines are bolder and appear denser and more prominent, whilst subterminal is almost extinct. Maritime Alps (Valdieri).

tenuialis. **Z. tenuialis** Rbl. (Vol. 3, p. 417) is now being illustrated (24 g). It also occurs in the Amur territory (Ussuri).

punctalis. **Z. punctalis** Herz. Forewings ashen grey with pale central band and elongated straight streaky stigma. The darker basal area is enclosed by a blackish transverse line. Posterior transverse line dentate, bending boldly outwards at top. Before outer margin and parallel to it, a pale grey, almost whitish transverse line. Hindwings paler with 2 brown transverse lines. Corea.

100. Genus: **Herminia** Latr.

H. cribrumalis Hbn. (Vol. 3, p. 421, pl. 72 e). — *aestivalis* Costni. is only half as large as type with obsolete *aestivalis*. markings. Occurring in August and clearly a 2nd generation. N. Italy, province Aemilia. — *modestalis* Boldt *modestalis*. is devoid of markings, except for a black discal dot.

H. crinalis Tr. (Vol. 3, p. 421, pl. 72 e, f). — *autumnalis* Dhl. is a remarkably small and dark autumn *autumnalis*. generation from the S. Tyrol. — *barbierii* Costni shows heavier markings on all wings. Orbicular and reniform *barbierii*. stigmata very bold, both central lines approximated. The antemedian line being moved further from base and the posterior transverse line touches the discal maculae on both wings. Central shade is absent. Fringes dotted with white. Described from 1 ♂ from Regium.

H. gryphalis F. (Vol. 3, p. 421). — *squalidalis* Dhl. are very dark, duskily blackish brown specimens *squalidalis*. occurring in both generations. S. Tyrol. We are illustrating the type form (24 g), of which no illustration was given in Main Volume. — *romana* f. n. (24 g) are Italian specimens from the neighbourhood of Rome, they are *romana*. paler, duller and have almost no subterminal line.

H. tentacularia L. (Vol. 3, p. 421, pl. 72 f). — *grönblomi* Nessling is unicoloured grey-black with a tinge *grönblomi*. of brownish, discal area faintly paler; only the posterior transverse line is indicated, the other markings extinct. Finland. — *meixneri* Wgr. is similar, brown with distinctly paler discal area, but normally distinct markings. *meixneri*. Gratz. — *romaniszyni* Kaucki is unicoloured dusky dark brown. Hindwings somewhat paler at base with whit- *romaniszyni*. ish subterminal line.

H. derivalis Hbn. (Vol. 3, p. 421, pl. 72 f). — *delicata* Dhl. is simply pale buff, all lines very delicate *delicata*. and fine, but distinct. The darker specklings on forewings completely absent. — *fangalis* Dhl. is a form occurring *fangalis*. chiefly among the autumnal brood in the S. Tyrol. It is dark brown, densely peppered with black-brown speckles and widened markings. A row of dark brown speckled dots occurs in outer area, which often seem to form a band. — *misera* Dhl. are very small specimens occurring among the autumn generation with normal ground *misera*. colour or duskily grey-brown, but completely devoid of markings. S. Tyrol. — *alternalis* Dhl. is a more varie- *alternalis*. gated form with suffused discal area. — *virgata* Rocci has a widely shaded transverse stripe, dusky central area *virgata*. to forewings and dusky basal area of hindwings.

H. flavicrinalis Andreas (24 h) was omitted from Main Volume, it should be classified next to *crinalis* *flavicrinalis*. and on an average is slightly smaller. Ground colour is a paler buff, sparsely and finely peppered with brownish. Markings are almost identical with those of *crinalis*, but they are more delicate and especially the postmedian line is frequently almost completely obsolete. Subterminal line extends more straightly, especially in costal area and it has barely any shading inwardly. Hindwings very pale in ♂, somewhat more distinctly marked in ♀. The thickening of the shaft below the middle of the ♂ antennae is less pronounced than in *crinalis*. Algeria.

H. gigantea Trti. (24 h). This is the largest species of the Genus. It closely resembles *crinalis* but has *gigantea*. longer pectinations to ♂ antennae. Forewings almost of the same shade as *flavicrinalis* and similarly marked, so that there is the possibility that this is a large insular form of the latter. Central shade is somewhat more prominent, especially towards the inner margin. Subterminal line is bolder and enclosed on both sides by fine, distinct brown lines. Sardinia, in June. — *autumnalis* Trti. is only half the size and is the autumn generation, *autumnalis*. which can be scarcely differentiated from *flavicrinalis*, although it is perhaps a shade browner than the latter. — The grey larva is mottled with brown on dorsum and has a violet zigzag stripe above spiracles. It feeds on withered leaves.

101. Genus: **Pechipogo** Hbn.

P. barbalis Cl. (Vol. 3, p. 422, pl. 72 g). — *anomalalis* Klem. denominates an aberrative specimen in *anomalalis*. which the anterior transverse line is interrupted in a point, so that with the apex of the angle it touches the discal lunule. From Poland.

108a. Genus: **Nagadeba** Btlr.

N. szetschwanensis Draes. resembles *N. indecoralis* Wkr., grey-brown, the inner line of forewings indi- *szetschwa-* *nensis*. stinct, double and bulging. A wide brown shade extends through the middle. Posterior transverse line is fine, sharply dentate. Subterminal line consists of a few small black dots. On hindwings both transverse lines are delicately brown with a dark shade between them, as on forewings. Orbicular stigma grey on upperside with dark surround, on underside it is chalky white and of elongated form. Reniform stigma on upperside is situated in the dark shade, whilst on underside it lies posteriorly. It is pale grey and edged on top and bottom by black dots. Szechuan (Omi-shien).

116. Genus: **Rhynchodontodes** Warr.

R. ravalis H.-S. (Vol. 3, p. 430, pl. 73 a). — *pallida* Schaw. are completely devoid of markings, very *pallida*. pale greyish brown. Only the pale brownish shade from apex to inner margin enables one to classify them as

as belonging to *ravalis*. From Mosul, occurring among pale grey-yellow transition specimens with faint rudimentary markings in discal area.

117. Genus: **Bomolocha** Hbn.

nigrobasalis. **B. nigrobasalis** Herz should be classified after *zilla* Btlr. (Vol. 3, p. 432, pl. 73 c), it is more coarsely and roughly scaled, deeper dark brown. The basal two-thirds are uniformly black-brown, the greyish white longitudinal streak is absent. Wing expanse: 28—30 mm. Corea.

nigrescens. *B. tristalis* Led. (Vol. 3, p. 434, pl. 73 f). — **nigrescens** Draes. is a very deep dusky brown with quite obsolete markings. Hindwings dark brown with fringes of same shade with a fine blackish terminal line.

nikkensis. **B. nikkensis** Wilem. & West. is most closely related to *B. zilla* Btlr. (Vol. 3, p. 432, pl. 73 e). Body pale brown, abdomen yellowish white. Forewings pale brown with a large dark brown patch, which covers the basal two-thirds of wings and extends from base to the posterior transverse line and from costa to vein 1. It is edged by a reddish yellow line that expands towards base. The postmedian line, as the outer edge of the dark area, extends from costa obliquely outwards to vein 4, where it is angulated and proceeds obliquely inwards over vein 2 and then somewhat outwards to vein 1, where it is again angulated and turns vertically to inner margin. Both the upper stigmata are represented by dark dots. The subterminal area is dusky. Costa is reddish yellow with 2 obsolete black-brown spots below apex. There are dark spots at margin in interstices between the veins. Hindwings pale brown. Wing expanse: 28 mm. Japan; Honsho, Nikko, Kobe, in July and August.

118. Genus: **Hypena** Schrnk.

innocua. **H. innocua** Wilem. & West. most closely resembles *triangularis* Mr. (Vol. 3, p. 444, pl. 75 k). Body and forewings dull grey-brown, the latter dusted more darkly. Both upper stigmata denoted by an appression of black-brown upstanding scales with an oblique streak from costa to orbicular stigma. Posterior transverse line, dark brown, undulate, extending obliquely inwards with yellowish red outer edge. Subterminal line consists of irregular black-brown dots, that are very indistinct below vein 5. Apex is intersected by an oblique black-brown streak. On margin there are blackish dots in interstices between the veins. Hindwings pale dull greyish brown, dusted dusily. Wing expanse: 26 mm. Japan (Honsho, Kiushu, Shikoku).

yoshinalis. **H. yoshinalis** Wilem. & West. Both this and the subsequent species are related to *rusticalis* Leech. (Vol. 3, p. 436, pl. 75 c). Body black-brown, forewings reddish yellow, dusted with black-brown and with dusky speckles. The black-brown anterior transverse line is undulate and extends from costa to mediana, thence obliquely inwards to inner margin. The posterior transverse line extends in an arc to mediana and then also obliquely to inner margin. Subterminal line is parallel, indistinctly brownish black. Marginal line of the same shade. Hindwings blackish brown. Wing expanse: 26 mm. Japan (Honsho, Shikoku).

hokkaidalis. **H. hokkaidalis** Wilem. & West. Forewings reddish yellow, peppered with sepia, markings indicated where the speckles become denser. Posterior to centre an indistinctly outlined obsolete patch or band extending half-way from below costa to vein 2, where it terminates contracting to a point. The subterminal band extends in a straight line to vein 3, where it is angulated inwards and proceeds obliquely to inner margin. The apex is intersected by a short oblique streak. Hindwings yellowish, somewhat peppered with brown. Wing expanse: 29 mm. Hokkaido.

cholericæ. *H. obsitalis* Hbn. (Vol. 3, p. 435, pl. 73 i). — **cholericæ** Schaw. is pale yellow-brown, only the outer edge of the central area is white. The central area itself is slightly paler. Herzegovina.

Corrections und Additions to Supplementary Volume 3.

1. Family: Agaristidae.

6a. Genus: **Maikona** Mats.

Closely related to *Asteropetes Hamps.* (Vol. 3, p. 7) and should be classified immediately following it. The 3rd segment of palpi is shorter than the 2nd. Antennae somewhat longer. Abdomen with very long basal tuft of hair. No crests on the other abdominal segments. On forewings veins 7 and 8 with very long stalk. Only one species:

M. jezoensis Mats. The black forewings are speckled with brown, olive, whitish and yellowish. Anterior transverse line is interrupted twice and is olive-grey and undulate. Posterior transverse line is double bending widely outwards behind the reniform stigma and with a large longish white spot in between. The white sub-terminal line expands at costa and inner margin. Marginal line brown, edged with white inwardly and streaked with golden yellow outwardly. Fringes white with black checks and black dividing line. Both the upper stigmata are black with grey centres. Below the origin of vein 2 there is a triangular white spot. The veins are somewhat paler. Hindwings yellow with wide black-brown marginal band and discal spot. Fringes yellow-white with dark dividing line. Hokkaido, in April and May.

2. Family: Noctuidae.

As the name **Noctua** should not be used ("Noctua": Aves praeoccup.), also the denomination *Noctuidae* should now be eliminated and according to the proposal of TAMS it should be altered into **Agrotidae**.

1. Subfamily: Acronictinae.

11. Genus: **Simyra** O.

S. moltrechti O. B.-H. (Suppl. Vol. 3, p. 6). In regard to this form, see p. 191 of this Supplementary Volume.

12. Genus: **Arsilonche** Led.

A. albovenosa Goeze (Suppl. Vol. 3, p. 7). — *neomelaina* Traub was due to a mistake, the form should be named — **nocmelaina**. — **tjurana** Drt. (pl. 25 a) is white, sparsely dusted with brownish, longitudinal streaks bronze-brown, the one below the mediana extends from base to margin and touches the length of the white vein 5. The veins are streaked with bronze-brown. Marginal dots are absent. Hindwings white with brownish veins and marginal line. Central Asia (Togus Churai). — **selenis** Schultz denotes specimens with boldly developed crescentiform patches on underside of all 4 wings. Described from Soltow.

A. renimaculata Osth. (pl. 25 f). Forewings yellowish white, coarsely speckled with brownish, the veins remaining pale. A fine long black basal streak and 4 black dots in the 4 corners of the reniform stigma. Short black streaks at margin. Hindwings and fringes pure white. From the Taurus, Amanus, in August.

14. Genus: **Acronicta** Tr.

A. pasiphae Drt. (pl. 25 a). This should be classified following *phaedra* (Suppl. Vol. 3, p. 8). A small species with white forewings sparsely speckled with black, rather more markedly so behind postmedian. Basal streak is marked as in *phaedra*. Anterior transverse line is double, sharply dentate, extending very obliquely to centre of inner margin, but at vein 1 reverting towards the base. The brownish stigmata are finely circumscribed by black. The posterior transverse line is only double at costa and at inner margin and is interfilled with white. Behind it on the discal fold there is a fine dart-shaped mark, with a stouter similar mark on sub-

median fold. Subterminal line is completely absent. The white fringes are checked with black. The white hindwings are dusky at margin and on veins with indications of a postmedian line. From the Amanus mountains (Taurus), in July.

nigrescens. *A. strigosa* F. (Vol. 3, p. 16). — **nigrescens** Barr. is completely black with the exception of the yellow-white orbicular and reniform stigmata. Described from England.

obsuta. **A. obsuta** Drl. (pl. 25 f). Forewings grey-white, speckled with brownish with black basal streak that branches out. Both transverse lines grey-brown, double; of the posterior line the outer part is bold and black, the inner obsolete, the space between them whitish, the area behind is dusky. Both stigmata are whitish with black surrounds. The reniform stigma is obliquely intersected by a brownish central shade, which is bent in a rightangle at lower end of cell and which extends close before and parallel to the postmedian line to the inner margin. There is a finely marked black dart-shaped mark subanally, which intersects the postmedian. Subterminal line is indicated by the contrast between the dark postmedian and the paler marginal areas. Fringes are intersected by black at the extremities of the veins. Hindwings are pale grey-brownish with duskier marginal area and a dark arched line in front. In the Amur territory (Sidemi).

bereci. *A. rumicis* L. (Vol. 3, p. 17; Suppl. Vol. 3, p. 9). — **bereci** Sand denotes a completely black aberration, devoid of all markings except minute traces of the white inner marginal spots. Described from France (Indre).

psideleta. *A. psi* L. (Vol. 3, p. 15; Suppl. Vol. 3, p. 9). — **psideleta** Turn. The subanal dart-shaped mark is completely absent. A small indistinctly marked aberration from Coventry. — A critical analysis of the difficult group of *psi-tridens-cuspis* has been given by GROSSE in the Frankfurt a. M., Ent. Zeitschrift, 50th Volume 1936, Nos. 19 and 20, pages 213 and 229, to which we wish to draw attention.

radoti. *A. tridens* Schiff. (Vol. 3, p. 16; Suppl. Vol. 3, p. 10). — **radoti** Le Cerf is a more uniform grey, without any paler patches, both transverse lines extend in equal width and straightly, almost without dentations. The subanal dart-shaped mark is bold and thickly marked. From Marakash (Morocco). — **soltowensis** Schultz denotes a specimen that is heavily dusted over with dark grey-brown and with very bold basal and subanal marks. Also the hindwings are dusky. Soltow.

nigromargi- *A. alni* L. (Vol. 3, p. 13; Suppl. Vol. 3, p. 11). The name *nigromaculata* Gelin was a mistake, it should have read — **nigromarginata** Gelin.

nata, *basistriata.* *A. auricoma* F. (Vol. 3, p. 16; Suppl. Vol. 3, p. 11). — **basistriata** Warn. has typical ground colouration, but with a deep black long and wide basal streak, that extends right to the subanal streak.

ankarensis. *A. megacephala* F. (Vol. 3, p. 15; Suppl. Vol. 3, p. 12). — **ankarensis** M. Hering (25 f) has the pale patch behind the reniform stigma, coloured whitish and besides the posterior transverse line is interfilled with white. *igdyrensis.* From Angora. — **igdyrensis** Teich has the pale ground colour of *aceris* with faintly yellowish tone. Markings are as in type form, but only faintly indicated with the exception of the posterior transverse line, which is very distinct and has finely outlined black dentations. Hindwings white, barely darker at margin. This form was bred from a batch of typical *megacephala* larvae feeding on willows near Igdyr in the neighbourhood of Ararat. *dungerni.* — **dungerni** Rangnow has very variegated forewings, markings black on pale grey ground, the pale patch behind the reniform stigma being reduced by black transverse markings. Hindwings grey. From Lapland.

fasciata. *A. euphorbiae* Schiff. (Vol. 3, p. 17; Suppl. Vol. 3, p. 12). — **fasciata** Hannem. denotes an aberrative specimen with wide dark central band. The name — *ottomana* Drl. must be withdrawn in favour of the older *acerbata.* name — **acerbata** Schaw. This latter form was described from Corsica and is almost exactly identical. Specimens received from Asia Minor (Akshehir) are also placed here. On the other hand the name for the form from the Italian Chalk Alps — *apennina* should be retained, the specimens are still paler, with much more *farinosa.* delicate markings and pure white hindwings. — **farinosa** Bytinski-Salz from Sardinia is much darker, the *andalusica.* markings more distinct, the transverse lines are not double, but simple, the central shade is absent. — **andalusica** Schaw. is strikingly marked. The inner marginal area of the centre, especially around the stigmata, is heavily speckled with black. Similarly to a certain degree in basal and outer areas. The grey ground colour itself is heavily interspersed with whitish. Fringes distinctly checked with black and white. Andalusia (Sierra de Luna).

flavescens. *A. leporina* L. (Vol. 3, p. 14; Suppl. Vol. 3, p. 13). — **flavescens** Lempke is a Dutch form, that is suffused *musella.* with yellow. — **musella** Rangnow has silky mouse-grey forewings, devoid of markings, except for an indication mark on costa, where transverse lines should commence and the discal spot, as well as the faintly discernible *minor.* outer marginal band. — **minor** Rangnow is almost the same only with a brownish line and denotes a very small *grisescens.* specimen with an expanse of only 11 mm. — **grisescens** Rangnow is heavily dusted with grey. Costal, discal and marginal spots all boldly black, otherwise devoid of markings. All these last 3 forms from Lapland.

15. Genus: **Craniophora** Snell.

navasi. *C. pontica* Stgr. (Vol. 3, p. 15; Suppl. Vol. 3, p. 13). — **navasi** Bours. differs from typical specimens by the absence of the black streaks along the veins in marginal area. Further there is a paler patch in subterminal

area between apex and vein 2. On the other hand the pale band below the orbicular stigma and the pale patch behind the reniform stigma are both duskier. The stigmata are enlarged but less distinct and surrounded by a brownish colouration. The shape of the forewings is shorter and wider. Described from Spain (the Pyrenees north of Aragon). There are differences in the genitalia and these may indicate that this is a separate species.

2. Subfamily: **Bryophilinae.**

19. Genus: **Bryophila** Tr.

B. gea Schaw. (pl. 25 d). This should be classified after *divisa* Esp. (= *raptricula* Hbn.) (Vol. 3, p. 19). *gea*. It is larger than latter with longer and narrower forewings and constant whitish hindwings. The ground colour is generally somewhat more reddish, the arrangement of the markings otherwise very similar, only the lines are more delicate and appear more prominent longitudinally. Genitalia differ from those of *divisa* and *oxybiensis*. From Spain (Sierra de Gea and Albarracin), more recently also found in Anatolia (Akshehir).

B. muralis Forst. (Vol. 3, p. 21; Suppl. Vol. 3, p. 18). — **viridior** Schaw. denotes specimens of intens- *viridior*. ively green ground colouration. From Corsica and also Herzegovina. — **barbaria** Schaw. (pl. 25 f) almost *barbaria*. gives the impression of being a separate species. Ground colour creamy white, the fine black crenular transverse lines are uninterrupted in their course and the stigmata are finely surrounded by black. In centre of discal area and at inner margin somewhat darker grey. In basal area near inner margin there is a prominent oval spot completely encircled by black. From the High Atlas (Sidi Chamarouche), in June.

B. umovii Ev. (Vol. 3, p. 21). We are now giving an illustration (pl. 25 f) of specimens from Akshehir *umovii*. (Anatolia). I now consider *burgeffi* Drt., to be only a smaller form of *umovii*.

B. perla F. (Vol. 3, p. 21; Suppl. Vol. 3, p. 19). — **benacensis** Dhl. has pure white ground colour with *benacensis*. some patches suffused with rose yellowish; the markings are extraordinarily fine and delicate. Hindwings pale grey, behind the dark marginal band, a row of fine grey-white dots. Fringes pure white, without checks. Italy (Monte Baldo), from an altitude of 1000—1900 m. The name — *dufranei* Drt. must be withdrawn in favour of the prior denomination — **subgrisea** Turner. *subgrisea*.

B. du seutrei Obth. (Suppl. Vol. 3, p. 20). An illustration can now be given (pl. 25 f). *du seutrei*.

B. paulina Stgr. (Vol. 3, p. 21; Suppl. Vol. 3, p. 20). — **keltana** Amsel enumerated on p. 181 of this *keltana*. Supplement is synonymous. It was incorrect to classify this as an *Athetis* and it is probably not even a special form of *paulina*.

B. subliterata Filipj. should be classified next to *literata* Moore (Vol. 3, p. 22) and resembles the illu- *subliterata*. stration on pl. 4 h. It has however no trace of ochreous or brownish colour. Forewings yellowish white, speckled with black, the lower half of median area darkened up to mediana. Subterminal line distinct, marginal area not paler. The very long fringes are not checked. Hindwings whitish, only very faintly darker at margin. no discal spot. Pamirs (Chorog), in April and September.

19d. Genus: **Meroleuca** Hmps.

As this name had already been utilised for an american Saturniid Genus: *Meroleuca* Pack., this generic name must be altered into: **Oedibrya** Hmps.

O. microglossa Rmb. (Vol. 3, p. 22; Suppl. Vol. 3, p. 22). This species is widely distributed over N. *microglossa*. Africa and is identical with *subplumbeola* Culot (= *cinnamomina* Rothschild) (Suppl. Vol. 3, p. 21), which was described as a *Bryophila*, and with which it is therefore synonymous. According to information kindly sent me by BOURSIN, the species is very variable, from quite pale to very dark specimens occurring and ROTH-SCHILD has in fact given names to a lot of aberrations of his *cinnamomina*.

O. boursini Drt. (pl. 25 d). Forewings ochreous whitish to pinky reddish, speckled more or less heavily *boursini*. and densely with leaden grey, especially in basal third, around reniform stigma and in marginal area. Central area paler and dusted with pinky reddish to dark brick red, especially in inner marginal half. Markings rather indistinct, transverse lines dentate, indistinctly double. The paler subterminal line indicated in patches. Fringes long and whitish, intersected by 2 dark lines and with slightly darker checks at extremities. Hindwings thinly scaled, whitish with blackish discal lunule and widely dusky grey at margin, except for the area between veins 6 and 7, which remains pale. A fine blackish marginal line before the white fringes. From around Wan, at an altitude of 2000 m, in September.

O. agenjoi Fdz. (Suppl. Vol. 3, p. 174). According to information from BOURSIN, this species, that was *agenjoi*. classified in this Supplementary Volume p. 173, under the Genus: *Esteparia* Fdz., should be placed here. In general the structure is identical except for the prolix pectinations of the antennae, which at the best could only demand the creation of a section under *Oedibrya*.

gracilis. Also — **gracilis** Wgnr. (Suppl. Vol. 3, p. 174), which was held to be a subspecies, had best be classified here and it may be considered to be a genuine species. *Esteparia* is thus synonymous with *Oedibrya*.

3. Subfamily: **Euxoinae**.

20. Genus: **Euxoa** Hbn.

subdistinguenta. **E. subdistinguenta** Cti. (Suppl. Vol. 3, p. 23, pl. 3 a). This and the following — **mendelis** Fdz. (p. 24) are conspecific. *mendelis* has priority rights and is the type of the species with *multisigna* Cti. (p. 23) as synonym. Just like *temera*, *mendelis* has parallel forms, thus *subdistinguenta* is the more variegated, being the corresponding form to *hübneri* with pale costa. — **anatolica** Drt. (pl. 25 a) is a form recently described from Akshehir. It is uniformly earthen brown, no pale costal streak, obsolete transverse markings and stigmata with fine black surrounds. Hindwings pale yellowish white with delicate brownish marginal line. Antennae more boldly pectinated. Genitalia identical with *mendelis*.

boursini. *E. temera* Hbn. (Suppl. Vol. 3, p. 24). — **boursini** Schaw. (pl. 25 g) is marked identically like *hübneri*, also in the pale costal streak, but the ground colour is a deep brown, black-brown or slate-black, the costal streak being pale yellowish or reddish yellow. The form was described from Corsica, but is also the predominant form in Anatolia and the Taurus. — *alphonsina* Fdz. is synonymous with **ruris** Hbn.

suffusa. **E. suffusa** Fdz. was originally classified with *villiersi* Gn. (= *temera-ruris* Hb.), but should be held to be merely a name for an aberration, denoting a somewhat paler specimen of *ambrosiana*, that is more heavily speckled with grey. As it was described first and in accordance with the rules of nomenclature, it must be introduced as the main form and the normal — **ambrosiana** Bours. (pl. 25 g) as a form thereof. It closely resembles *hastifera* Donz. (Vol. 3, p. 27; Suppl. Vol. 3, p. 24), differing however distinctly in the structure of the antennae, the shaft of which is thinner and pectinations longer in the ♂ and thinner by half than in *hastifera*. Forewings are somewhat longer and more rounded at apex. The ground colour is a warm brown; transverse lines and subterminal sagittate marks are virtually absent. The black triangular mark in cell in front of the orbicular stigma is much reduced and narrow, in *hastifera* it is about as long as the diameter of the orbicular stigma and much wider. Stigmata are much darker in *hastifera*, in *ambrosiana* they are almost white and faintly yellowish like the costal streak. On underside forewings are whitish, no discal spot, in *hastifera* they are dusky with a black discal dot. Spain (Cnencia; Albarracin).

distinguenta. **E. distinguenta** Led. (Vol. 3, p. 27; Suppl. Vol. 3, p. 25) covers a very difficult group, among which are a number of closely related forms and even species. The following have recently been described: — **rumelica** Bours. The contrast of the various markings on forewings is much greater than in typical specimens, ground colour being very dark brown to black; the 3 stigmata very distinctly darkly outlined, the intermediate space in cell almost black, also subterminal sagittate marks prominently deep black; costal area and oblique streak behind claviform stigma very pale. Size is considerably greater than that of type. Bulgaria. — **akschihirensis** Cti. (25 g) closely resembles the preceding form, it is similarly darker and more sharply marked with pronounced reddish yellow tinge, especially in the pale oblique streak behind the claviform stigma; generally however exceedingly variable. From Anatolia (Akshehir). The name — **perdistincta** Zerny seems to me unjustifiable and BOURSIN concurs with me in this, as with the exception of the very pale brown form — **distincta** Stgr. from Amasia, there is no other *distincta* described by STGR. According to J. KOZHANTSCHIKOV also — **christophi** Stgr. (Suppl. Vol. 3, p. 25) should only be considered a subspecies of *distinguenta*. This question may prove very difficult to decide with the great variability of all these forms.

continentalis. *E. haverkampfi* Stfs. (Vol. 3, p. 29; Suppl. Vol. 3, p. 26). — **continentalis** Reisser has been quite recently recorded and is a surprising discovery in Spain (Sierra de Gredos). The pectinations of the antennae are slightly finer, but genitalia are identical. It is a purer whitish grey without any yellowish admixture, markings are more distinct and purer black. Transverse lines edged with purer white on averted sides. Hindwings paler whitish grey.

schawerdae. *E. aquilina* Schiff. (Vol. 3, p. 32; Suppl. Vol. 3, p. 26). The *aquilina* group still remains one of the most difficult to classify and according to KOZHANTSCHIKOV also *wagneri*, *sabuletorum* (= *squalida* Ev., *punctifera* Cti., *terrestris* Cti.), *actinea*, *glabella*, *quassa*, *obscurior* Stgr. (= *oberthüri* Leech) and *distaxis* are all merely forms of it. — **schawerdae** Bours. is an interesting form, which in its outer appearance is a parallel development to the grey forms: *temera* to *hübneri* and *praevisa* to *distinguenta*. Costal area is the same colour as the ground, the transverse lines are more distinct, claviform stigma indicated by a fine brownish outline. Savoy. — **obeliscata** Wgnr.-Cti. (Suppl. Vol. 3, p. 27 erroneously places it as synonym to *actinea* Kozh.) and — **schwingenschussi** Cti. (Suppl. Vol. 3, p. 27) are conspecific with *aquilina*. BOURSIN writes to me: "I cannot find sufficient difference to separate the 3 forms specifically. Besides, this race from Asia Minor (*obeliscata*) varies just as much as *aquilina* does in France and central Europe." Among the *obeliscata* specimens occur that superfi-

cially are exactly like *oranaria* A. B.-H. (Suppl. Vol. 3, p. 25), but which can be immediately distinguished by the structure of the antennae. — *wagneri* Cti. (Suppl. Vol. 3, p. 27) is however certainly a separate genuine *wagneri*. species.

E. vinirufa Drt. (pl. 25 a) closely resembles the *obeliscata* form, but I consider it a genuine species, as *vinirufa*. the structure of the antennae is somewhat different. Head ochreous reddish, 2nd segment of palpi laterally black; collar dark brown with black line, scapulae dusky brown with pale reddish inned edge; abdomen almost white with ochreous anal tuft. Forewings cinnamon reddish, peppered with brown, veins blackish. Basal area, cell and claviform stigma black-brown with deep black basal streak. Only the anterior transverse line is present and indistinctly double. Orbicular stigma obliquely elliptical, reniform stigma with dark central streak. Apical costal third and marginal area are black-grey, in the latter the subterminal line is discernible in patches. Hindwings and fringes white with veins faintly brownish. From Sultan-Dagh in Anatolia.

E. distaxis Bours. is the correct name for the species described as *actinea* Kozh. (Suppl. Vol. 3, p. 27). *distaxis*. This name has right of priority and *actinea* is synonymous.

E. ligula A. B.-H. is to be classified with *recussa* Hbn. (Vol. 3, p. 32, pl. 6 k; Suppl. Vol. 3, p. 28). It is *ligula*. paler, claviform stigma practically absent and subterminal line very different. It stands out very distinctly from the grey, somewhat bluish dusted marginal area and has a deep dark shade inwardly; between veins 1 and 4 it forms a wide arc and on veins 4 and 6 projects sharply outwards. Otherwise forewings are reddish brown, admixed with grey especially at inner margin, transverse lines obsolete. The stigmata are pale and grey with reddish cores, situate in blackish ground colour of cell. The veins 1 to 3 are darkened. Hindwings grey-white with black marginal line, obsolete discal spot and barely visible dusky marginal band. Wing expanse: 34 mm. This is established from 1 ♂ from Juldus.

E. obelisca Schiff. (Vol. 3, p. 27, pl. 5 h; Suppl. Vol. 3, p. 28). — **stephensii** Heydem. denotes a smaller *stephensii*. form from Holstein. Ground colour instead of being purplish brown is more of a grey-black with faint reddish undertone or quite slate-black. Costa and the two stigmata pale yellowish with grey centres and finely circumscribed by black. Hindwings purer white in ♂ and more narrowly shaded with dark grey; darker grey in ♀. When describing this form, HEYDEMANN draws attention to the fact that specimens from humid climates, from localities on the Atlantic and moist mountain regions appear to have more attenuated segments to antennae which are less densely and more loosely ciliate. On the other hand specimens from arid continental districts have stouter antennae with denser and more numerous cilia. — **salioclitana** Bours. (pl. 24 h) differs from other *salioclitana*. known forms by the considerably paler ground colour; it has shorter pectinations than the ♂ of typical swiss or austrian specimens and the shaft of antennae is somewhat more slender. From Saclas (Seine-et-Oise).

E. theryi Le Cerf most resembles *vitta* Esp. and *christophi* Stgr. Forewings reddish grey with reddish *theryi*. white costal streak, the median nervure being of similar colouration. Transverse lines are absent. A black basal streak terminates at base of claviform stigma. The cell between the stigmata is blackened. Orbicular stigma is reddish grey with fine black circumscription; reniform stigma grey-brown, inclined to grey-white in lower half; the long claviform stigma has grey centre and black outline. Marginal area is blackish with the exception of a quadrate paler patch at apex. Subterminal line consists of reddish grey dots, to which on inner side black sagittate marks are attached. Fringes reddish grey with ochreous basal line. Hindwings yellowish white, tinged with grey at costa and margin. — **ahmed** Le Cerf is a monotonous ochreous grey form without any paler streak *ahmed*. on costa. Wing expanse: 31—35 mm. Morocco (Central Atlas), mount Bou Iblane in August at an altitude of 2500 m.

E. pseudoobelisca Cti. (pl. 25 k) is somewhat smaller than *obelisca*, the pectinations of the antennae *pseudoobelisca*. of ♂ are less boldly pyramidical. Forewings reddish brown with paler brown costa, which is the same colouration as stigmata. The cell between stigmata and basal area is dusky. From the almost black claviform stigma a pale brown oblique band extends to anal angle. The veins are slightly dusted blackish. The two transverse lines are very obscure and indicated by a few arcs. Subterminal line very indistinct anterior to the dark outer area; there are no sagittate marks. Hindwings almost pure white with veins and margin faintly dusky. From Ak-Shehir, Anatolia, in September.

E. robiginosa Stgr. (Vol. 3, p. 29, pl. 6 c; Suppl. Vol. 3, p. 30). — **intensior** Drt. (pl. 25 a) is a somewhat *intensior*. larger form with wider wings. Forewings are darker and more inclined to grey-brown, more heavily peppered with black and veins prominently black especially in marginal area. Anatolia and Taurus.

E. anaemica Drt. (pl. 25 g) closely resembles *robiginosa*, but has a different shaped valve and is certainly *anaemica*. a genuine species. Thorax and forewings pale yellowish grey, sparsely speckled with brown and markings barely indicated by a few distributed black scales. Anterior transverse line seems to proceed vertically, the posterior line is faintly dentate. The upper stigmata are indicated and appear to be fairly large; from the reniform traces of a central line extend to inner margin. Marginal area is slightly more densely peppered with black and has faint indications of a subterminal band. There are black interneural streaks at margin. Hindwings of ♂ white

and somewhat transparent, of ♀ brownish grey with white fringes. From around Van in Turkish Armenia, in August, at an altitude of 2000 m.

cursoria. **E. cursoria** Hufn. (Vol. 3, p. 30, pl. 6 g; Suppl. Vol. 3, p. 29). HEYDEMANN has very kindly drawn my attention to a mistake made by Dr. CORTI, who seems to have misunderstood KOZHANTSCHIKOV. The latter considers — *sagitta* Hbn. to be a genuine species, but not *cursoria* v. **sagittata** Stgr. The type of the latter originates from Swinemunde, whilst *sagitta* Hbn. is from S. Russia. The v. *sagittata* Stgr. is not rare on the Baltic and North Sea coasts.

lecerfi. **E. lecerfi** Zerny (pl. 25 g) is related to the group of *conspicua* Hbn., *nevadensis* Cti. and the subsequent *mansour* Le Cerf. Forewings yellowish or inclined to reddish brown, markings as in *conspicua*; orbicular stigma is not oblique, but elongated oval. Sagittate marks before the subterminal line are distinct. The pectinations of ♂ antennae are longer than in the other species mentioned and there are differences in the genitalia. From Tachdirt in the High Atlas (Morocco) in July at an altitude of 2300 to 3100 m.

mansour. **E. mansour** Le Cerf is also closely related to *conspicua* Hbn. and has similar markings. Colouration is more of an ochreous brown, the markings are rather more clear, without being much more prominent. Orbicular stigma smaller, hindwings paler, marginal band narrower and more definite in outline. Wing expanse: 41 mm. Central Atlas, Morocco in August at an altitude of 3100 m.

transcaspica. **E. transcaspica** Kozh. was omitted by Dr. CORTI. It is probably the same species as *E. catervaria* Cti. (Suppl. Vol. 3, p. 30), which was described later and therefore the first name has priority. It is a monotonous grey with faint markings. According to size and general appearance it is nearest to *hilaris*. All 3 transverse lines are black, faintly undulate, the blackish subterminal line is diffuse or absent. On margin there are black streaks edged inwardly with white. The upper stigmata are only barely indicated, claviform stigma is quite absent. Hindwings grey with white fringes. Wing expanse; 32—39 mm. Sumbar in Transcaspia.

rubra. *E. cos* Hbn. (Vol. 3, p. 31, pl. 6 i; Suppl. Vol. 3, p. 30). — **rubra** Cti. is a dark brick-red specimen that forms a special race around the Lebanon, where so many species incline to be ruddy. Similar specimens however have occurred in Spain and the Pyrenees. KOZHANTSCHIKOV holds the opinion that *cos* and — **millieri** Stgr. are 2 separate species and alleges that there are distinct differences in the genitalia. It appears that all the specimens he deems to be *millieri* are from Georgia and the Crimea, whilst the *millieri* (Stgr.) Berce was described from S. France and these specimens show no differences anatomically or in general appearance from *cos*, neither do the specimens from the Abruzzi. As these specimens from the Crimea are said to have wider forewings, a broader discal area and a differently shaped posterior transverse line, this may be a new species, it certainly does not appear to be *millieri*.

achyricola. **E. achyricola** Cti. (Suppl. Vol. 3, p. 32). According to BOURSIN this is the same species as *heringi signata* Stgr. (Suppl. Vol. 3, p. 31) but the name can be retained, as a form of *candelarum* Stgr. has the same name *signata*. Probably it is only the anatolian form of *decora* Schiff. (Vol. 3, p. 29, pl. 6 d; Suppl. Vol. 3, p. 31). A large number have been captured at Ak-Shehir and also in N. Persia (Elburz mountains) and a fresh illustration is given on pl. 24 h, as the illustration on pl. 4 d of the Supplement left something to be desired.

mimouna. **Rh. mimouna** Le Cerf (26 d) is possibly only a *decora* form with rather more boldly serrate antennae. Forewings pearly grey to brown, markings indicated rather paler. The antemedian line consists of 4 equal arcs with darker outer edges. The posterior transverse line is dentate on the veins. The small round orbicular and the reniform stigmata have faintly ochreous surrounds. Claviform stigma is absent. Subterminal line is indicated by a row of pale dots. Fringes grey, ochreous at base, intersected by a grey line. Hindwings grey, duskier at margin. Wing expanse: 33—39 mm. Colouration is very variable: — **argillosa** Le Cerf is inclined to pale yellowish grey, marginal area slightly duskier, markings clearer, transverse lines darker grey. — **rosacea** Le Cerf is a rosy ochreous, markings as in *argillosa*. Central Atlas, Morocco, in August, September at an altitude of about 3000 m.

conformis. *E. diaphora* Bours. (Suppl. Vol. 3, p. 34). — **conformis** Bours. corresponds to the *donzeli* form of *siepii* or to the *praevisa* form of *distinguenda* and differs from type by the yellowish brown ground colour and similarly coloured costa and the absence of the claviform stigma. Uralsk.

costaevittata. *E. cortii* Wgnr. (Suppl. Vol. 3, p. 34). — **costaevittata** Wgnr. (Suppl. Vol. 3, p. 34) should be classified as a form of this species. According to information of BOURSIN genitalia of both are identical.

sulcifera. **E. sulcifera** Chr. (Vol. 3, p. 33; Suppl. Vol. 3, p. 34). We are now able to give an illustration (pl. 25 d) of this rare and remarkable species. It has now also been discovered at Ak-Shehir in Anatolia.

amoena. **E. amoena** Stgr. (Vol. 3, p. 34, pl. 7 e; Suppl. Vol. 3, p. 38). According to KOZHANTSCHIKOV this is no *Euxoa*, but an *Agrotis* (*Ochropleura* according to KOZHANTSCHIKOV) and identical with *flavida* again described

by Dr. CORTI on p. 71 of this Supplement. *flavida* therefore becomes a synonym and the name *amoena* should be substituted.

E. apocrypha Cti. (Suppl. Vol. 3, p. 37). According to KOZHANTSCHIKOV this should be classified as a *apocrypha*, synonym to *basigramma* (Vol. 3, p. 33, pl. 7 b; Suppl. Vol. 3, p. 37).

M. lidia Cr. (Vol. 3, p. 33, pl. 7 c; Suppl. Vol. 3, p. 39). KOZHANTSCHIKOV continues to maintain that *lidia*, *lidia* and *adumbrata* Ev. are conspecific, the genitalia of these forms and also of *polygonides* are quite identical and in the ♀♀ these are very characteristic and the same in all 3 forms. Also the antennae of the ♂ are alike, with short serrations and faintly ciliate. On the other hand — **phantoma** Kozh. (Suppl. Vol. 3, p. 33) has differently constructed antennae and a different formation of the genitalia. KOZHANTSCHIKOV, who has examined the types of EVERSMAAN, therefore concludes that Dr. CORTI had mistaken *adumbrata* for *phantoma* and thinks that no other explanation is possible.

M. detorta Ev. (Vol. 3, p. 32; Suppl. Vol. 3, p. 39). According to both FILIPJEV and KOZHANTSCHIKOV *detorta*, this is conspecific with *cursoria* Stgr.

M. aimonis Trti. Described from a single ♀ and its classification consequently uncertain. Forewings *aimonis*, monotonous earthen brownish. The blackish transverse lines consist of striated dots. In place of the orbicular stigma 2 elongated dots, reniform stigma merely indicated and faintly darker. The subterminal consists of a complete row of sagittate marks and the marginal line also is made up of black triangular dots. Hindwings thinly scaled and earthen grey. Frons has a crater-shaped prominence. Wing expanse: 32 mm. Karakorum.

M. vanensis sp. n. (pl. 25 h) should be classified next to *foeda* Led. (Vol. 3, p. 32, pl. 7 a; Suppl. Vol. 3, p. 41). According to BOURSIN this is a genuine *Meseuxoa* and is closely related to *enitens* Cti. and its form *marmorosa* Cti., which he does not consider to be a *Feltia*. The differences however are sufficient to establish a genuine species. Colour of thorax and forewings is brownish earthen grey, coarsely peppered with black. Collar with wide blackish transverse band that is edged on both sides with deeper black. Basal streak is absent. Both transverse lines are simple and crenulate. Orbicular and reniform stigmata large, of the same colour as the ground and with fine black circumscriptions. Between them is a black quadrate mark, that generally has an "X" shape. Marginal area dusky grey with subterminal line therein, irregularly dentate and barely paler than the general ground colour. Beyond the black marginal triangles, there is a paler basal fringe line, the fringes themselves are grey-brown. Hindwings pure white, dusky in ♀, no discal spot and very pale yellowish grey marginal line, fringes glossy white. Underside of forewings pale yellowish grey with discal spot and postmedian. Shaft of antennae is bold with fine serrations and fascicles of cilia, only ciliate in terminal third. Type from around. Van in Turkish Armenia, a few specimens have also been captured in the Taurus (Marash) and Anatolia (Ak-Shehir) in September. (Collection of DRAUDT.)

M. hilaris Frr. (Vol. 3, p. 31, pl. 6 i; Suppl. Vol. 3, p. 41). The group of forms belonging here is extremely *hilaris*, difficult to classify and the position is by no means clear. In correspondence with Mr. BOURSIN nothing definite could be ascertained. He writes: "This *Meseuxoa* group is very complicated and in my opinion it is too early as yet to form a final opinion. The illustration of *hilaris* in SEITZ Supplement (pl. 6 i) is — **conifera** Chr., which *conifera*, is not identical with *hilaris*. I consider that the genuine *hilaris* is the same as the new species established by KOZHANTSCHIKOV as — **rjabovi** (Suppl. Vol. 3, p. 42), but in regard to this I shall only be able to speak with *rjabovi*, authority a little later." I received from N. Persia, through the kindness of Mr. PFEIFFER, a large number of a small species, that I first considered to be *hilaris*, but BOURSIN asserts that they have no connection at all and that he holds these to be a new *Meseuxoa* similar to *opportuna* Cti. (Suppl. Vol. 3, p. 40, pl. 5 d) and *subvaria* Cti. (Suppl. Vol. 3, p. 40, pl. 5 c). I am describing them provisionally as follows:

M. difficillima sp. n. (pl. 26 b). Head and thorax pale earthen brownish, collar with black central line, *difficillima*, palpi laterally with a few blackish hairs, scapulae similarly before the inner margin. Forewings pale brownish grey, sparsely peppered with blackish. Generally somewhat paler and inclined to yellowish grey at costa, inner margin and in upper stigmata. Subbasal consists of 2 black double arcs, both transverse lines are double and undulate, the posterior one dentate, the edges of the two lines, that face one another, are more heavily black than the outer edges, which are often quite extinct. Claviform stigma is large, with black surround, the two upper stigmata similarly; orbicular is somewhat oblique and oval, frequently elliptical at top; reniform has a bolder grey core. The cell is with black scales of varying intensity before and between the stigmata. Between veins 4 and 5 generally a fine black longitudinal streak extends to the subterminal, which is only indicated by the contrast between the postmedian area and the deep grey-black narrow marginal area. Anterior to it a few black short sagittate marks. The veins in the postmedian area are slightly peppered with grey. At margin there are bold black triangular marks and beyond them a bright orange-yellow basal line to fringes. The fringes are grey-black, paler at extremities. Hindwings brownish grey, darker at margin with bold discal spot and faintly darker veins. Fringes yellowish in basal half, outwardly whitish. Underside pale yellowish grey, darker at margin with bold discal spots and indicated postmedian lines. At margin of both wings there are protracted black triangles and an orange yellowish base to fringes. A large number of specimens have been received from

the Elburz mountains (Kendevan Pass and Tacht i Suleiman). Types in the collection of DRAUDT, cotypes in the collection of PFEIFFER and BOURSIN.

21. Genus: **Agrotis** O.

- atlanta*. **A. atlanta** *Le Cerf* is close to *graslini* *Bsdv.*; forewings pale ashen grey, with reddish tone at the lower angle of cell between veins 2 and 3 and around the submedian fold. The mediana and base of nervure 2 are white. Stigmata with black surrounds. Orbicular stigma white, reniform with a white arc only on inner edge. It differs from *graslini* by the wider and more rounded wing contour, the more precise and clearer markings. W. Morocco on the dunes on the atlantic coast; Casablanca. Wing expanse: 31—40 mm. In September.
- dirempta*. **A. dirempta** *Stgr.* (Vol. 3, p. 24; Suppl. Vol. 3, p. 43). We are now able to give an illustration (pl. 25 h).
- sabulosa*. **A. sabulosa** *Rnibr.* (Vol. 3, p. 25, pl. 12 a; Suppl. Vol. 3, p. 47). A perfect specimen of very pale grey colouration has now also been captured at Teneriffe and we are illustrating it on pl. 25 h, as it varies considerably from type. We introduce the name — **fortunata** *f. n.* for it.
- liouvillei*. **A. liouvillei** *Le Cerf* (pl. 25 h). Forewings ochreous whitish with very distinct black markings. Anterior transverse line is not dentate, whilst the posterior line is dentate. Subterminal line with distinct sagittate marks. The round orbicular stigma has brown core and ochreous circumscription; reniform is dark brown and the elongate claviform is dark ochre. Basal and marginal areas sparsely speckled with blackish. Hindwings impure white, slightly more dusky at margin with pale ochreous marginal line. Morocco (Central Atlas). The larvae probably feed on some small *Festuca* plant.
- albula*. *A. chretieni* *Dum.* (Vol. 3, p. 25, pl. 5 c; Suppl. Vol. 3, p. 48). — **albula** *Fdz.* is a form that is more heavily powdered over with grey-white, so that fore and hindwings are alike. Markings of forewings almost obsolete, only the reniform stigma and the dark grey marginal lunules are retained. Burgos, Spain.
- variegata*. *A. cinerea* *Schiff.* (Vol. 3, p. 27, pl. 5 g; Suppl. Vol. 3, p. 48). The aberrative specimen with heavy central shade, illustrated on pl. 7 a of this Supplement, is named by SCHAWERDA: — ab. **variegata**; his specimen *aragonensis* was captured at Waidbruck. — **aragonensis** *Schaw.* denotes a small narrow-winged ♂ from Aragon (Sierra Alta) of very dark grey-brown colouration, the markings are still just discernible.
- nigriorbis*. *A. exclamationis* *L.* (Vol. 3, p. 34, pl. 7 d; Suppl. Vol. 3, p. 49). — **nigriorbis** *Zerny* (pl. 25 h) is a very distinct form from the High Atlas (Tachdirt), in which the stigmata have deep black centres and especially the orbicular stigma, whilst the claviform stigma is very long and stout, the transverse lines very heavy.
- wagneri*. *A. ripae* *Hbn.* (Vol. 3, p. 41, pl. 9 a; Suppl. Vol. 3, p. 50). The form — **wagneri** *Cti.* which shows extreme variation, is illustrated (pl. 25 i).
- rubrofusca*. *A. trux* *Hbn.* (Vol. 3, p. 30, pl. 6 e; Suppl. Vol. 3, p. 51). — **rubrofusca** *Schaw.* is deep fuscous on forewings, head and thorax. Corsica and also Albarracin.
- puta*. **A. puta** *Hbn.* (Vol. 3, p. 28, pl. 6 a; Suppl. Vol. 3, p. 51). An new locality for this species is the Canary Islands (Teneriffe), where it occurs in the form *syricola* *Cti.*
- anastasia*. **A. anastasia** *Drt.* (pl. 25 e). This is best classified between *lutescens* *Ev.* and *romanovi* *Chr.* (Vol. 3, p. 38 and 39; Suppl. Vol. 3, p. 53). Thorax and forewings pale yellowish. Edge of collar widely brownish. Transverse lines on forewings commence at black costal spots, the anterior one is only partially present, the posterior line is indicated by black-brown dots on veins, that become more coherent below vein 2. Subterminal line is indicated by a brown dentate inner edge. Stigmata are merely discernible through faint brownish surrounds in cell and beyond it. Before the reniform stigma there is a stout black streak. Hindwings pure white. Taurus (Marash); Van; Iraq (western slopes of the Kurdistan mountains). Occurring in August.
- serraticornis*. **A. serraticornis** *Stgr.* (Vol. 3, p. 38, pl. 8 d; Suppl. Vol. 3, p. 53). This species is certainly also found in type form in Asia Minor. It definitely occurs at Angora (teste REBEL) and at Ak-Shehir (in the collection of DRAUDT).

Subgenus: **Powellinia** *Obth.*

- matritensis*. **P. matritensis** *Vasq.* (Vol. 3, p. 24; Suppl. Vol. 3, p. 54) and **messaouda** *Obth.* (Vol. 3, p. 36, pl. 7 i; Suppl. Vol. 3, p. 54) are conspecific and merely forms of one and the same species.

Subgenus: **Cladocerotis** *Hmps.*

- flagrans*. **C. flagrans** *Pglr.* Described by the author as *Euxoa* from 2 ♀♀, was omitted from the Supplement. It apparently closely resembles *tischendorffi* *Pglr.* (Suppl. Vol. 3, p. 55) but is of a richer brick-red colouration with very similar but rather more obsolescent markings. Hindwings suffused with brownish grey, no discal

spots. Underside pale reddish grey, all wings with wide, diffuse arched line, no discal spots. Wing expanse: 32—37 mm. From Aleppo.

C. benigna *Cti.* (Suppl. Vol. 3, p. 54). A new locality for this species is the Taurus (Marash). I have a *benigna*, specimen from there before me that is quite devoid of markings and whitish grey and a second similar specimen that is pale reddish brown.

C. tischendorffi *Pglr.* (Suppl. Vol. 3, p. 55). Like the preceding species, this has now also been captured *tischendorffi*, in the Taurus (Achyrdagh) in October and further is reported from the Lebanon. It does not seem to be conspecific with *benigna*, the latter has a distinct dark discal spot on hindwings, which in normal setting is parallel to the axis of abdomen. *tischendorffi* has merely a very thin, scarcely darker cell-end streak, that with similar setting, forms an angle to the axis of the body. Specimens of *tischendorffi* occur, that are earthy brownish with very faint reddish sheen instead of the usual brick-reddish colour.

Subgenus: *Ogygia* *Hbn.*

O. celsicola *Bell.* (Vol. 3, p. 35, pl. 7 g; Suppl. Vol. 3, p. 55). This species and the allied nearest forms *celsicola*, are such a difficult subject, that even today it is impossible to give final decisions. BOURSIN has considered the matter and writes to me: "This group must one day be made the subject of special study. In my opinion — **amasina** *Trti.* has no connection with *celsicola* and should be considered a genuine species. In these groups, *amasina*, where the species are so closely allied and where the genitalia are so similar, any small constant difference is of great importance, which in other groups would perhaps not have the value of denoting a difference between races. After examination of a few prepared specimens of *amasina* and *celsicola* (from France) I have found differences — particularly in the furcula — and according to other outer characteristics, the two do not seem to me to be conspecific; also — **gracilis** *Wgnr.* (Suppl. Vol. 3, p. 55) I do not consider to be a form of *celsicola*; *gracilis*, on the other hand I believe I have received the genuine *celsicola* from Iraq." — Meanwhile certainly genuine *celsicola* have been captured in the Elburz mountains (N. Persia). It must be remarked here that through some incomprehensible oversight, *amasina* was indicated as being a form of *forcipula*, which is certainly not the case. For the moment therefore, *gracilis*, as well as *amasina*, should be held to be genuine species.

O. wiltshirei *Bours.* should be classified near *libanicola* *Cti.* and *amasina* *Trti.* Forewings fairly dark *wiltshirei*, brown with distinct antemedian and indistinct claviform stigma with brown-black surround. Orbicular stigma pure white with brown central streak and reniform stigma is similar. Postmedian is present. Subterminal line consists of whitish streaks with black-brown sagittate marks attached inwardly on veins 6—8. The fringes are of the same shade and have a black-brown marginal line. Hindwings white, tinged with brownish towards the margin and especially at apex. Wing expanse; 32—35 mm. Iraq (Rayat).

O. forcipula *Schiff.* (Vol. 3, p. 35, pl. 7 f; Suppl. Vol. 3, p. 55). — **nigrescens** *Hofm.* (Vol. 3, p. 35, pl. 7 f) *nigrescens*, is also a genuine species. BOURSIN writes to me in regard to this: "*nigrescens* is quite different to *forcipula*. Both occur together and fly concurrently, for instance at St. Martin-Vésudie, where I have taken them myself. *nigrescens* is always the larger, is darker and has a very dentate postmedian and also the genitalia of this group are very different. I hold the opinion that until the necessary material has been assembled, all these specimens should be classified separately in nomenclature." In — **obscurior** *Cti.* the locality Becharré in the Lebanon, *obscurior*, should be added. — **atlantis** *Schwing.* (26 d) is larger and has wider wings than *forcipula* or *nigrescens*, to which *atlantis*, latter it is more likely to be allied. It closely resembles *obscurior*, but is much paler and more reddish, as is the case with so many insects from the High Atlas. The markings are indistinct and inclined to be diffuse. From Tachdirt, Iminene valley, also Sidi Chamarouche. From end of May to early July.

O. latipennis *Pglr.* (Suppl. Vol. 3, p. 55). This interesting species is now known to occur in the neigh- *latipennis*, bourhood of lake Van.

O. signifera *F.* (Vol. 3, p. 35, pl. 7 g; Suppl. Vol. 3, p. 56). — **orientis** *Alph.* An examination of the *orientis*, genitalia has shown that this is a genuine species. A number of specimens are before me from Angora.

O. sureyae *Rbl.* (Suppl. Vol. 3, p. 56). This species, which has meanwhile been captured around Van *sureyae*, is now being illustrated (pl. 25 i).

Subgenus: *Dichagyris* *Led.*

D. melanura *Koll.* (Vol. 3, p. 48, pl. 10 i; Suppl. Vol. 3, p. 57). — **roseotincta** *Cti.* is a nice form from *roseotincta*, Becharré in the Lebanon, with forewings with roseate suffusion. End of June, beginning of July.

D. illauta *Drt.* (pl. 25 b) closely resembles *melanura* *Koll.* (Vol. 3, p. 48, pl. 10 i; Suppl. Vol. 3, p. 57). *illauta*, On an average it is somewhat smaller and of darker greyer or more yellowish grey or reddish brown ground colouration. Transverse lines are more distinct, as also is a central shade. The 3—4 black costal spots are fainter and duller. The black marginal band is narrower and equally wide to the anal angle, with indications of a subterminal line. Fringes pale with light reddish yellow base line. Hindwings whitish, also in ♀ becoming dusky towards margin but without the black marginal band of *melanura*. Fringes white. Anatolia, Taurus, Araxes.

jacobsoni.

D. jacobsoni Kozh. has been overlooked. Ground colour of forewings rosy whitish, peppered with black, with black and very sharply distinct markings. Fringes pale with dark striations. Hindwings pale with a wide dark outer band. Underside pale, glossy with dark margin. Wing expanse: 35—40 mm. Transcaspia (Sumbar; Kisil Art). It differs from the similar *umbriifera* Alph. (Vol. 3, p. 56, pl. 13 f) by the paler ground colour, more diffuse postmedian, but more distinct subterminal line; on hindwings marginal band is more distinctly outlined.

assimilata.

D. assimilata Kozh. resembles *clara* Stgr. (Vol. 3, p. 34; Suppl. Vol. 3, p. 59), differing by the markings and the size. Colour is pale ashen grey, peppered with black. Stigmata are faint, as in *clara*. Both transverse lines are more widely separated from one another on costa. Subterminal line distinct, wide and boldly dentate. Central shade in the form of a square on costa, wider than in *clara*. The central area is only half as wide at inner margin as in its upper half. The posterior transverse line is only very faintly excurved. Hindwings dark, paler towards base with almost white fringes. Wing expanse: 32 mm. Caucasus (Arash).

armeniaca.

D. armeniaca Kozh. is also like *clara*, but considerably smaller and of ashen grey colour densely speckled with black. Markings are only poorly developed. Stigmata practically absent, transverse lines however are present. The black subterminal line is somewhat diffuse and with big dentations. Fringes pure white. Hindwings somewhat dusky from margin to centre. Underside whitish grey with tips of forewings blackened. Antennae of ♂ with short and fine cilia. Wing expanse: 34 mm. *armeniaca* differs from the also somewhat similar *celebrata* Alph. by the more distinct subterminal line and from *assimilata* by the much wider central area. From Armenia (Migry). Described from one ♂ specimen.

nigrolineata.

D. nigrolineata Kozh. (pl. 25 i) closely resembles the *squalorum* group. Ground colour grey-brown, bestrewn with black. The black markings are well developed, the postmedian is markedly displaced inwards, so that the outer area is very wide and occupies nearly half the wing. In this way great similarity to *squalidior* is created. Outer area is dark, cuneiform marks on subterminal line are only faintly indicated. Hindwings dark in ♀, pale in disc in ♂. Wing expanse: 32—35 mm. N. Persia (Shahkuh).

nigrolineata.

D. eremicola Stfs. (Vol. 3, p. 34, pl. 12 f; Suppl. Vol. 3, p. 57). — **nigrolineata** Cti. (Suppl. Vol. 3, p. 57)

dubiosa. should not be mistaken for the preceding genuine species and should be renamed — **dubiosa** f. n., as Dr. CORTI only gave his name in 1933, whilst the preceding species was denominated in 1930.

erimaea.

D. squalorum Ev. (Vol. 3, p. 49, pl. 10 i, k; Suppl. Vol. 3, p. 57). — **erimaea** Kozh. denoted as a form by Dr. CORTI, is a genuine species according to KOZHANTSCHIKOV, and is closer to *valesiaca* than to *squalorum*, but differs from both in the genitalia. Generally the orbicular stigma is smaller than in the other two species, the colouration has a yellowish tinge and dark or brown shades are quite absent. The large reniform stigma is elliptical outwardly. The distance between the postmedian and reniform stigma is always greater than the width of the latter. Discal and marginal areas are about equally wide. Subterminal line has a white inner edge. Hindwings as in *valesiaca*. The species also occurs in the Kara-dagh.

inexpectata.

D. inexpectata W. Kozh. (Suppl. Vol. 3, p. 57) was introduced as a form of *valesiaca*, but according to KOZHANTSCHIKOV it is a genuine species, the genitalia of the two species showing considerable divergences. Forewings pale to dark grey-brown, those of the ♀ being constantly distinctly darker. All transverse lines are deep black, the dark central shade is intersected in the middle. Subterminal line has a few black sagittate marks inwardly. Orbicular and reniform stigmata are not large, round. Claviform stigma with sharp black circumscription, but very small. Hindwings of ♂ grey-white, of ♀ dark grey with dusky veins and margin. Minusinsk, also reported from the Altai.

venosa.

D. venosa Kozh. (Suppl. Vol. 3, p. 58). This was also enumerated as a *valesiaca* form, it is however a genuine species and it was a mistake to state "Corti ined.". It closely resembles the forms of the *squalorum* group and also *tyrannus*, but it can be easily differentiated by the pale colour of the hindwings of ♂ (white). Markings as in *squalorum*, but more distinct and with white outline, in *squalorum* they are simply dark. Subterminal cuneiform marks are more bold, veins distinctly prominent and dark. Wing contour rather more protracted and pointed than in any of the other species. Pamir and Semiretje, not from Sarepta.

melanuroides.

D. melanuroides Kozh. (Suppl. Vol. 3, p. 58) is a genuine species with different genitalia. It occurs in Turkestan and W. Bokhara.

griseotincta.

D. griseotincta Wgnr. (Suppl. Vol. 3, p. 58) is also not a form of *valesiaca*, but according to BOURSIN a genuine species. Whether *brunneotincta* should be classified with it, is not certain.

tyrannus.

D. tyrannus O. B.-H. (Suppl. Vol. 3, p. 58) is an entirely separate species from *celebrata* Alph. and readily distinguished. According to KOZHANTSCHIKOV, the latter does not belong among the *Dichagyris*, but to the Subgenus *Ochropleura*. The most important and characteristic difference is that in *celebrata*, the two upper stigmata are entirely absent, whilst in *tyrannus* they are present and between them there is a distinct and bold black quadrate mark. — **striatus** Kozh. is a form from N. Persia (Shahrud), which is marked with bold and well developed longitudinal streaks.

D. squalidior Ev. (Vol. 3, p. 49; Suppl. Vol. 3, p. 58). — **albicularis** Kozh. is a form with pale whitish *albicularis*, grey ground colour and less prominent black transverse lines. Caucasus (Borshom).

D. fimbriola Esp. (Vol. 3, p. 56, pl. 13 f; Suppl. Vol. 3, p. 58). — **amaliae** Fdz. is found to be a synonym *amaliae*, to the form *iberica* Zerny. — **iminenia** Zerny (pl. 25 i) is the largest of all known *fimbriola* races, with a wing *iminenia*, expanse up to 32 mm. Forewings paler or darker reddish brown, generally with a well pronounced central shade. The very distinct transverse lines are always double. The pale subterminal line is very distinct in the dark marginal area, the cell between the stigmata is generally boldly black. From Tachdirt in the High Atlas (Morocco) in July, at an altitude of 2200 to 2700 m.

D. laeta Rbl. (Suppl. Vol. 3, p. 58) is not a form of *fimbriola* Esp., as was assumed in the Supplement *laeta*, but is a genuine species. It occurs simultaneously with *fimbriola* — form *zernyi* Cti. — in the same localities in Anatolia. The genitalia show a constant variation: the valve is wider, the lower process of the double harpe extends considerably beyond the lower edge of the valve, which is not the case in *fimbriola*; the ventral plate, which in the latter has the shape of the Ace of Diamonds with 4 long protracted points, is triangular in *laeta*; the penis of *laeta* is bent at a right angle and has a cluster of small attenuated black-brown chitinated corneous stalks, whilst in *fimbriola* it is only slightly bent, the corneous stalks are more widely triangular, thicker and much paler chitinated.

D. despecta (Suppl. Vol. 3, p. 59). The author of this species is not BANG-HAAS, who had only named *despecta*, it in litt. from undescribed specimens in the PÜNGELER collection.

D. singularis Stgr. (Vol. 3, p. 34, pl. 12 g; Suppl. Vol. 3, S. 59) should be classified, according to Koz- *singularis*. HANTSCHIKOV, under the Subgenus *Ochropleura* Hb. and not under *Dichagyris*. The same applies to *ignara* Stgr. (Vol. 3, p. 34, pl. 7 e; Suppl. Vol. 3, p. 59).

D. subsqualorum Kozh. (25 i) is very like *squalorum*, but the genitalia are more like those of *inexpectata*. *subsqualorum*. Ground colour earthen or grey-brown with whitish grey tinge. Markings black; orbicular stigma small, round, reniform further removed from postmedian; central area wider than marginal area; subterminal line with pale outer edge; cuneiform marks faint; marginal area only slightly darker. Hindwings pure white, dusky at margin in ♀. Antennae of ♂ with slighter and shorter cilia than *squalorum*. Caucasus (Borshom, Dagestan); Transcaucasia (Tiflis); Armenia; N. Persia.

Subgenus: **Chersotis** Bsdv.

Ch. multangula Hbn. (Vol. 3, p. 48, pl. 10 h; Suppl. Vol. 3, p. 59). — **travunia** Schaw. According to the *travunia*, author, this is distinct from *dissoluta*; *travunia* has pale brown ground, with contrasting darker brown markings, which however are much fainter and more curtailed than in the pale grey *dissoluta*. Also hindwings are much paler and whitish.

Ch. gratissima Cti. (Suppl. Vol. 3, p. 59). A further locality, where this pretty species has been found, *gratissima*, is around Lake Van in Turkish Armenia.

Ch. guberlae Cti. (Suppl. Vol. 3, p. 60) also occurs at Ak-Shehir in Anatolia. *guberlae*.

Ch. juvenis Stgr. (Vol. 3, p. 48, pl. 12 c; Suppl. Vol. 3, p. 60). Dr. CORTI has again illustrated this species *juvenis*, on pl. 71 under the denomination "*clarivenosa*", without however giving a description. The small species also occurs in Anatolia and in the Elburz mountains in N. Persia.

Ch. semna Pglr. (Vol. 3, p. 48; Suppl. Vol. 3, p. 61). This nice species has also been discovered in the *semna*, Elburz mountains in N. Persia, as well as at Van in Turkish Armenia.

Ch. zukowskyi Drt. (24 b) should be classified between *maraschi* Cti. and *sordescens* Stgr. (Suppl. Vol. 3, *zukowskyi*, p. 61). Thorax and forewings roseate yellowish white, the latter sparsely speckled with black. Transverse lines are rather incomplete, a bold median band merges with the postmedian. The space between the stigmata forms an "X" and is deep black. The boldly dentate subterminal line has a broad blackish inner edge. There is a yellow-white marginal line before the grey speckled fringes. Hindwings white, faintly dusky towards the margin. N. E. Asia Minor (Sivas).

21. Genus: **Rhyacia** Hbn.

Rh. subrosea Steph. (Vol. 3, p. 36, pl. 7 i; Suppl. Vol. 3, p. 63). — **rubrifera** Warn. denotes specimens *rubrifera*, that are more heavily red-brown and blue-grey, such as the majority of the specimens captured on the European continental mainland.

Rh. glebosa Stgr. (pl. 24 i) was omitted both from the Main Volume and the Supplement. This pretty *glebosa*, species is best classified between *glareosa* Esp. (Vol. 3, p. 39, pl. 8 f; Suppl. Vol. 3, p. 63) and *margaritacea* Vill. (Vol. 3, p. 54, pl. 13 b; Suppl. Vol. 3, p. 64). It is smaller and sleeker with somewhat narrower wings and more

oblique margin. Forewings pale bluish grey, basal area, stigmata and the space between the barely discernible postmedian and subterminal lines slightly paler still, almost whitish. Subbasal and anterior transverse line are indicated by heavy black striated spots, the cell space between the stigmata is deep black, as also is a costal streak above the reniform stigma. Marginal area slightly darker. Hindwings pale grey with white fringes. Described from Zeitun, but also occurring in the Elburz mountains in N. Persia.

rafidain. **Rh. rafidain** Bours. seems to belong to the *insignata* group, but as hitherto no ♂ has been captured, the classification is still somewhat uncertain. Forewings grey, admixed with rosy brown. The black-brown ante-median is clear, claviform stigma absent. Orbicular stigma small and indistinct, the cell space between it and the insignificant reniform stigma is rose-brown. The posterior transverse line is rather less distinct than the anterior line and behind it subapically on costa there is a large dark brown streak. Subterminal line is barely visible. There are black dots on the nerves before the fringes, which are the same colour as the wings. Hindwings impure white with wide dark marginal band. Wing expanse: 32 mm. Iraq, Bagdad.

columbina. **Rh. insignata** Led. (Vol. 3, p. 54, pl. 13 b; Suppl. Vol. 3, p. 64). — **columbina** Drt. (25 b) is a very pale blue-grey form with faint violet hue, slightly darkened median area and very large stigmata. The latter are not paler in centres and are delicately but distinctly circumscribed with yellow-white. All markings are very delicate. Hindwings pure white without marginal line. Anatolia (Sultan-Dagh) and also from around Lake *fuliginosa*. Van. — **fuliginosa** Drt. (25 b) on the contrary is heavily suffused with grey-black, the veins standing out prominently white. A very large form from Van.

peterseni. **Rh. peterseni** Krul. (= *eversmanni* Pet.) was accidentally omitted. Superficially it closely resembles *collina* Bsd. (Vol. 3, p. 47, pl. 12 b; Suppl. Vol. 3, p. 65), but the genitalia are differently constructed. It is easily differentiable from *collina* by the dark interfilling of the space between the posterior transverse stripe and the subterminal line. In colouration this species most resembles dark forms of *festiva*, that approach the *f. thulei*. Esthland, Finland, Leningrad, Urals.

rupicola. **Rh. rupicola** Trti. (pl. 24 i) is classified by its author next to *senescens* and *quadrangula* on account of the pectinated antennae of the ♂. Superficially it would seem to have a closer resemblance to *renigera* and related forms. Meanwhile we place it after *jordani*, which also has pectinated antennae. Ground colour yellowish white with faint roseate hue, markings diffuse olive-brown, sometimes almost obsolescent; at margin there are black streaks in the interstices between the veins. Hindwings whitish, tinged with rose towards margin and with olive postmedian. The ♂ antennae are bipectinated, pectinations becoming shorter and finer towards the tip. Cyrenaica in October, November.

eremica. **Rh. devota** Chr. (Vol. 3, p. 55, pl. 15 i; Suppl. Vol. 3, p. 65). — **eremica** Amsel is much more yellowish and with fainter markings. On underside it is not darker towards margin. Wing contour is wider and it is of stouter build. Genitalia as in *devota* and not as *renigera*. Palestine (Georgian Monastery) in March.

caerulescens. **Rh. caerulescens** Wgnr. (Suppl. Vol. 3, p. 65) has no connection with *renigera* Hbn. (Vol. 3, p. 55, pl. 13 e; Suppl. Vol. 3, p. 65) and is probably a form of *hadjina* Stgr. (Vol. 3, p. 55, pl. 15 i; Suppl. Vol. 3, p. 66) unless it is a separate species. It also occurs in N. Persia (Elburz mountains) and the specimens from there, are a very nice grey-blue shade with pale orange-yellow stigmata.

pontica. **Rh. latens** Hbn. (Vol. 3, p. 52, pl. 11 f; Suppl. Vol. 3, p. 66). — **pontica** Drt. (pl. 25 e) is somewhat smaller and of more graceful build, paler earthen grey with simplified markings. There is no central shade and sub-terminal line only very faint. Stigmata barely discernible. Hindwings paler, whitish. From Anatolia and N. Persia.

pseudolatens. **Rh. pseudolatens** Schwing. (26 d) is an intermediate between *grisescens* and *latens*. The yellowish grey wider forewings more closely resemble *grisescens* and especially the form *thianshanica*, whilst the uniformly grey-brown hindwings are more like those of *latens* in that they are not paler at base and have no arched stripe either on upper or undersides. Whether this is a genuine species or not, cannot as yet be decided. The characteristic yellow-grey colour, the wing contour and its isolated occurrence — *grisescens* and *latens* have not yet been found in Africa — suffice to separate it. It occurs at Tachdirt in the High Atlas (Morocco) at the end of July at an altitude of 2300—3100 m.

cervantes. **Rh. grisescens** F. (Vol. 3, p. 29, pl. 6 g; Suppl. Vol. 3, p. 66). — **cervantes** Reisser (pl. 25 k) denotes a robust, wide winged race with ochreous ground colour, which is sometimes somewhat shaded by black speckling. All wings silkily glossy, the black markings distinct and well developed, also the central shade is clear and wide. Fringes with ochreous yellow base line. Hindwings pale yellowish grey with dark veins, indications of a post-median and a faintly dusky margin. This form, which emanates from Spain, despite its different appearance, is conspecific with *grisescens* as the genitalia are identical. Sierra de Gredos, in July.

sollers. **Rh. sollers** Stgr. (Vol. 3, p. 55, pl. 13 d; Suppl. Vol. 3, p. 67). It was already indicated in this Supplement that this group of forms presents difficulties; *sollers* was described from Persia and whether the forms described in Main Volume belong to it, is still doubtful. It is certain that the specimens from Anatolia and the Taurus (Marash) supposed to be *sollers* are not this species, but probably a separate species. BOURSIN, who just at the moment is devoting himself to this group, writes to me preliminarily that he has had an opportunity to examine the original types of *sollers* Chr. of STAUDINGER which the latter had received direct from CHRISTOPH.

The species seems to be rare in collections. He adds that the particulars given by CORTI (Ent. Mitt. 1927, XVI, p. 71) in regard to a subdivision of this group, into those with projection and those without projection at the lower edge of valve, are incorrect and not in accordance with actual facts. BOURSIN, who has examined the genitalia of all the species of this group, as far as were available, hopes to publish very shortly a recapitulation dealing with the whole group. In this, the above species from the Taurus and Ak-Shehir, will be described. Meanwhile it may be remarked that — *obumbrata* Stgr. (Vol. 3, p. 55) is a genuine species, that has no connection with *sollers*. — *sollertina* Cti. (Suppl. Vol. 3, p. 67, pl. 9 d). According to BOURSIN this is only a paler specimen of *obumbrata*.

Rh. obsoleta Cti. (Suppl. Vol. 3, p. 67, pl. 9 d) from the Lebanon, is according to information from BOURSIN, certainly a genuine species, that has no connection whatever with *candida* Stgr. (Vol. 3, p. 55, pl. 13 d; Suppl. Vol. 3, p. 67). It may possibly be related to *socors* Cti. (Suppl. Vol. 3, p. 68, pl. 9 e), which was described from the Alexander Mountains and Djarkent.

Rh. paralia Cti. (Suppl. Vol. 3, p. 67, pl. 9 d). BOURSIN considers this identical with *candida* Stgr.

Rh. dormitans Cti. (Suppl. Vol. 3, p. 67, pl. 9 c). According to BOURSIN this should certainly be classified with *laetifica*.

Rh. damnata sp. n. (pl. 26 b). According to the opinion of Mr. BOURSIN this is a new species in this extremely difficult group of forms around *sollers* and closely resembles the anatolian pseudo *sollers* that has not yet been described. Wing contour is elongate and narrow as in related species. Head and thorax glossy yellow-grey, sprinkled with brownish, base of palpi and edges of eyes inclined to ochreous. Forewings have pale ochreous grey ground densely speckled with slate-grey, most densely in marginal area. Subbasal and anterior transverse lines double, slate-grey, interfilled with pale ochreous yellowish. The posterior transverse line is single, rarely double, boldly crenulate with pale outer edge. The orbicular stigma is yellowish, a supine very small narrow oval. Reniform stigma is completely obliterated by the dark central shade, or is only faintly indicated in paler outline. There is practically no trace of a subterminal line or on its inner side there are somewhat darker grey sagittate streaks that more or less merge with one another. Marginal line bright ochreous, fringes darker grey in basal half, paler at extremities. Hindwings fairly dark grey-brownish with darker veins and discal lunule and almost white fringes that are somewhat yellowish at base. On underside the hindwings have a wide dark marginal band, that is fairly definitely outlined by the postmedian. Very variable in the paler or darker ground colour and the distinctness of the transverse lines. The genitalia are said to differ from *sollers* by the more heavily chitinised penis, increased elongate valves and longer and narrower claspers, also the dentate projection at lower edge of valve is longer (BOURSIN). A large number of these have been received from the Elburz mountains (Tacht i Suleiman) from PFEIFFER; July 1936. Types in the collection of DRAUDT, cotypes in the collection of PFEIFFER.

Rh. figulina Drt. (pl. 25 c) belongs to the same group of forms as the preceding species. It has long narrow forewings of reddish clay ground colour, suffused with grey-white at costa and inner margin. Markings leaden grey, in similar arrangement to the preceding species. Transverse lines single, crenulate. Orbicular stigma is a grey dot, reniform stigma a faint grey crescentiform streak. Subterminal is absent; there are small black triangular dots anterior to a reddish yellow fringe base line. The fringes themselves are pale grey, with paler division. Hindwings brownish white with brown veins and discal lunule and white fringes. There is a marginal line expanding between the veins. Described from 1 ♀ captured in July at Ak-Shehir.

Rh. helvetina Bsdv. (Vol. 3, p. 51, pl. 11 e; Suppl. Vol. 3, p. 68) — *lhassen* Le Cerf denotes an ochreous grey race, in which the pale ochreous stigmata and transverse lines are more prominent and brighter. Wing expanse: 41—45 mm. Central Atlas, Morocco in August. Obviously very close to *gilva* B.-H.

Rh. gilva A. B.-H. (Suppl. Vol. 3, p. 68). We are now able to give an illustration (pl. 24 i) of a specimen from Ak-Shehir, where the species is now also found in the Sultan Dagh at an altitude of 2000 m. It seems however to be certainly only a form of *helvetina*.

Rh. dyris Zerny (24 i) very closely resembles darker *gilva* specimens, but is a genuine species, which differs from *helvetina* by the different build of the antennae and genitalia. Ground colour is inclined to be a pale brownish red, frequently with roseate hue, the markings are otherwise almost identical; central and sub-terminal areas are faintly darker, in the former the stigmata, which are without darker surrounds, seem to stand out more palely. From the High Atlas (Tachdirt) Morocco at an altitude of 2700 m. A very pale red specimen has been named — ab. *rosea* Schwing.

Rh. flavida Cti. (Suppl. Vol. 3, p. 71). As stated under *E. amoena* (p. 242) this is synonymous with the latter.

Rh. roseoflava Cti. has been temporarily classified with *similis* Stgr. (Vol. 3, p. 40; Suppl. Vol. 3, p. 70) of which it was held to be a form. According to BOURSIN it is a genuine species that has no relationship with

similis. The wing contour is narrower, ground colour pale reddish yellow, the dark marginal lunules are absent. Abdomen is almost white, antennae, markings, scales and hairs are otherwise the same. Captured at light in June at Bescharré in the Lebanon.

- scruposa*. **Rh. scruposa** Drt. (25 c) is perhaps best classified before *wiskotti* Stfs. (Vol. 3, p. 51; Suppl. Vol. 3, p. 71). Ochreous yellowish brown, more or less peppered with black, widely dusted with greyish white at costa and inner margin. Anterior transverse line is double like the short subbasal, the posterior transverse line is simple, sharply dentate with faintly pale outer edge. Orbicular stigma is absent or indicated by a black dot, reniform stigma is a narrow blackish crescent. The pale subterminal line is dentate with dark inner edge and occasionally with blackish cuneiform marks anteriorly. Fringes yellowish with 2 brownish dividing lines. Hindwings whitish in ♂ and shaded; blackish brown in ♀; with discal spots and postmedian that are heavily marked on underside. From Sivas in N. E. Asia Minor.
- insulicola*. **Rh. insulicola** Trti. (Suppl. Vol. 3, p. 71, pl. 10 c). According to the genitalia, this is a genuine species and not a form of *lucernea*. A very pale yellowish grey form with similarly paler hindwings is denominated by SCHAWERDA — **pallida**. The contrasting dark form — **melanophila** has the forewings dark grey with blackish outer area, no yellow.
- osmana*. **Rh. osmana** Wgnr. (Suppl. Vol. 3, p. 72, pl. 10 c). This has proved itself to be a genuine species. From an examination of the genitalia, it is not a *lucernea* form.
- turbeti*. **Rh. turbeti** Le Cerf is to be placed next to *simulatrix* Hbn. (Vol. 3, p. 51, pl. 12 e; Suppl. Vol. 3, p. 71) from which it differs by the narrower wing contour and straighter outer margin. Ground colour is more monotonous grey, the lines are less heavily dentate and without pale edge. Also the reniform stigma is less prominent. Orbicular stigma is completely absent. Underside purer white without shading at margin. Ground colour is a fairly dark ashen grey with scarcely any ochreous tone, markings are slightly darker, reniform stigma obsolescent indicated by faintly darker shading with a minute pale central streak. Marginal area is not darker, no trace of a subterminal line or of sagittate streaks. Base of fringes pale ochreous. Wing expanse: 40 mm. Morocco, Central Atlas in August, at an altitude of 3200 m.
- anatolica*. **Rh. elegans** Ev. (Vol. 3, p. 53, pl. 11 i; Suppl. Vol. 3, p. 72). — **anatolica** Drt. (24 i) differs by the much paler hindwings. These are pure white in ♂. Also by the pure white veins on forewings, which are double as wide as in type. Anatolia (Ak-Shehir); on the other hand persian specimens are identical with those from Spain, Italy and Albania. — **kacem** Le Cerf differs from european specimens by the more reddish brown ground colour and more distinct black and white markings. Fringes with brown dividing line. Hindwings darker. Central Atlas, Morocco.
- ponticola*. **Rh. alpestris** Bsd. (Vol. 3, p. 54, pl. 11 k). — **ponticola** Drt. (pl. 25 b) has dark coppery forewings peppered with black, dusted with leaden grey in innermarginal half of central area. Neither veins nor stigmata have pale outlines and the latter are reddish with brown inner markings. Hindwings paler, whitish towards base. From Ak-Shehir (Anatolia) and Persia (Elburz mountains).
- arnoldi*. **Rh. arnoldi** Trti. is unknown to me. The author describes it as a *Feltia* and places it next to *ocellina* and *alpestris*. Forewings pale brown dusted with grey with whitish subcosta and mediana. Similarly the stigmata with grey centres, which are situate in black ground of cell. The large claviform stigma is dark grey with black outline. The postmedian consists of black dots and striations, subterminal line of long black cuneiform marks. Hindwings grey, dusky towards margin and with faint streak at close of cell. Wing expanse: 29—36 mm. Occurring in 2 generations in April and July, August on the Karakorum at altitudes from 2000—4000 m.
- elbursica*. **Rh. elbursica** sp. n. (25 k). This fine new species is obviously close to the *rana* form of *candelisequa* Schiff., but differs nevertheless considerably. Forewings elongate and extended, pale reddish yellow-grey, delicately peppered with brownish black. The veins rather more coarsely bestrewn, with no trace of the long black basal streak. Marginal area somewhat more dusky grey, most widely at apex. Markings very indistinct except for black dots at lower corners of reniform stigma. Only in one specimen these spots become more obvious and form a sort of outline to reniform stigma. Fringes pale yellowish with still paler base line. Hindwings transparent white with fine brownish marginal line, in the ♀ veins are somewhat brownish. The ♀ has an extended ovipositor. Described from 3 freshly emerged pairs captured in N. Persia (Elburz mountains) at an altitude of 3000 m. Types in the collection of DRAUDT. According to BOURSIN this is an extreme development of the *Dichagyris* group as also *candelisequa* (Vol. 3, p. 54, pl. 13 a; Suppl. Vol. 3, p. 73).

Subgenus: **Diarsia** Hbn.

- dannehli*. **Rh. festiva** Schiff. (Vol. 3, p. 39, pl. 8 h; Suppl. Vol. 3, p. 76). — **dannehli** Cti. (Suppl. Vol. 3, p. 75) an aberrative specimen should be classified here. The plate reference should be cancelled and the specimen *carlilei* is now illustrated on pl. 24 i. — **carlilei** Brandt is much paler, without brown dusting. The posterior transverse

line is sharply angulated on costa towards the base, the subterminal line is heavily shaded towards the base, it is intersected by pale radiary streaks. Described from one ♀ captured in July in Livonia.

Rh. rubi View. (Vol. 3, p. 45, pl. 10 c). — **grisea** Peets is a dull grey form with diffuse markings from *grisea*. N. Germany.

Rh. florida Schmidt (Vol. 3, p. 46, pl. 10 c). According to the researches of HEYDEMANN, this must now *florida*, be considered a genuine species and no longer a form of *rubi*.

Rh. iobaphes Bours. Ground colour of forewings violet-brown, subbasal only visible at costa. The dark *iobaphes*, purplish brown antemedian is visible throughout its course. In place of the claviform stigma, that is absent, there is a tooth-like dark streak before the antemedian pointing towards the base. Stigmata are large and paler than ground and the cell space between and before them is deep black-brown. There is no central shade in the somewhat paler median area. Postmedian and subterminal lines are distinctly present. Hindwings impure brownish yellow with darker marginal band. Wing expanse: 36 mm. The species is to be classified next to *rhomboides* Esp. (Vol. 3, p. 45, pl. 10 b; Suppl. Vol. 3, p. 80). From Djebel-Sannin in the Lebanon.

Rh. depuncta L. (Vol. 3, p. 44, pl. 9 i). — **arenoflavida** Schaw. are specimens of quite pale sandy colour- *arenoflavida*, ation with extinct transverse lines and reduced black markings. Reniform stigma barely visible. Hindwings pure white, also in ♀. Somewhat smaller than typical specimens. Albarracin.

Rh. molothina Esp. (Vol. 3, p. 38, pl. 8 e; Suppl. Vol. 3, p. 81). — **andalusica** Schaw. are such deep *andalusica*, purplish black specimens, that the markings are invisible. Hindwings white with blackish costa, outer margin and veins. Andalusia.

Rh. senna H.-G. (Vol. 3, p. 50, pl. 11 a; Suppl. Vol. 3, p. 81). — **violetta** Schaw. are not an earthen brown, *violetta*, but a deep violet brown ground colour, the black markings very delicate, transverse lines with whitish edges, the black patch in cell is quite absent. Hindwings somewhat paler with reddish tone. Albarracin, Spain.

Rh. cuprea Schiff. (Vol. 3, p. 50, pl. 11 a; Suppl. Vol. 3, p. 81). — **pertexta** Drt. (25 d) has forewings *pertexta*, of a deep violet, chocolate-brown colour, transverse lines and patch in cell between the stigmata are deep velvety black. Stigmata are grey-black with white circumscriptions, also mediana is white in median area. Hindwings grey-black with reddish white fringes. From Ak-Shehir (Sultan Dag).

28. Genus: **Xestia** Hbn.

X. enargiaris Drt. (pl. 25 e) is to be placed after *miniago* Frr. (Vol. 3, p. 58, pl. 13 i; Suppl. Vol. 3, p. 83). *enargiaris*. Pale yellowish, brownish white, sparsely speckled with pale brown. Transverse lines faintly sinuate, the posterior line distinct and brown, almost touching the large reniform stigma at lower end of cell. Like the orbicular stigma this is open at top and bottom, otherwise with a delicate red-brown outline, which unfortunately is not clearly visible in our illustration. Behind the postmedian there are short blackish striations on veins, beyond which is the somewhat dentate but bold brown subterminal line. Before the reddish brown fringes there is a further delicately undulate brown marginal line. Hindwings thinly scaled, pure white with the veins dusted with brown towards the margin and a delicately undulate marginal line. Marash, Taurus; September and October.

29. Genus: **Aplectoides** Btlr.

A. borealis Nordström (Suppl. Vol. 3, p. 84). — **imandrensis** Lingonblad is synonymous to this species. *borealis*, *imandrensis*.

A. speciosa Hbn. (Vol. 3, p. 59, pl. 13 i; Suppl. Vol. 3, p. 84). As a subform to *arctica*, we must add — **diffusa** Rangnow. It is a variegated velvety brown, all dark markings obsolete, 2 pale transverse bands with *diffusa*, diffuse edges extend across the wing. Only the orbicular stigma is retained, the reniform stigma is extinct. From Lapland.

30. Genus: **Anomogyna** Stgr.

A. sincera H.-S. (Vol. 3, p. 59, pl. 13 k; Suppl. Vol. 3, p. 85). — **fennica** Brandt is said to be notably *fennica*, paler than the form *rhactica* Stgr., the ground colour is a pronounced whitish grey, without any brown tone, only occasionally the stigmata are a darker nebulous grey. Hindwings also are paler grey. Kuusamo, Finland. Probably this is only the typical *sincera*.

32. Genus: **Cerastis** Fr.

C. witzenmanni Stfs. (Vol. 3, p. 150, pl. 36 i; Suppl. Vol. 3, p. 88). In regard to the form — **vinosa** Obth. *vinosa*, it must be remarked that the illustration on pl. 12 l, does not represent this form, but rather — *plumbina* Trti.

C. faceta Tr. (Vol. 3, p. 38, pl. 8 c, d; Suppl. Vol. 3, p. 96). As a synonym to this we have to add: — *faceta*, *amicta* Donz. ("Orthosia").

33. Genus: **Orthosia** Tr.

wagneri. *O. senex* Guen. (Vol. 3, p. 61, pl. 14 d; Suppl. Vol. 3, p. 88). — **wagneri** Bours. denotes a somewhat smaller and considerably darker grey-blue race. Frequently the median area is darker and contrasting, in some specimens the transverse lines and stigmata are outlined in reddish yellow. Also the hindwings are more heavily dusted with grey. The form, that is a transition to the still darker *typhoea* Trti. from Sicily, is described from Bulgaria, but also occurs in Anatolia.

38. Genus: **Triphaena** Hbn.

interjecta. **T. interjecta** Hbn. (Vol. 3, p. 63, pl. 15 a; Suppl. Vol. 3, p. 90). Unfortunately the typical southern form and — **caliginosa** Schaw. have been confused. The type originates from Italy and France and is pale ochreous brown with pale yellow hindwings with narrow black bands. *caliginosa* is the northern form with dark brown forewings and deeper yellow hindwings with wider black bands.

42a. Genus: **Auchmis** Hbn.

argentea. *A. comma* Schiff. (Vol. 3, p. 509, pl. 75 l; Suppl. Vol. 3, p. 91). — **argentea** Car. is a large, very pale ashen grey race with obsolescent markings and pure white hindwings in ♂. Rumania (Silver Coast).

46. Genus: **Blepharita** Hmps.

immaculata. *B. leuconota* H.-S. (Suppl. Vol. 3, p. 92). The author of the form — **immaculata** is not SCHAUSS., but SCHAWERDA.

4. Subfamily: **Hadeninae**.4. Genus: **Scotogramma** Smith.

lodbjergensis. *S. trifolii* Rott. (Vol. 3, p. 68, pl. 15 g; Suppl. Vol. 3, p. 96). — **lodbjergensis** Hoffmeyer & Knudsen is a very peculiar dark grey-black form in which the pale yellow-brown fasciae contrast strongly. Described from a ♀ from the west coast of Jutland (Lodbjerg). Whether this is merely aberrative or denotes a race, cannot be stated from the one specimen.

compacta. **S. compacta** Trti. resembles, according to the description of the author *S. ghigi* Trti. (Suppl. Vol. 3, p. 97), but is much darker grey with more rounded outer margin. Forewings densely peppered with dark grey on yellowish ground. Subbasal and antemedian are double and with pale interfilling. Claviform stigma in the shape of a horseshoe, black. The round orbicular stigma is yellowish. Beyond it there is an obsolescent central shade. The large reniform stigma is dark and circumscribed by black in its lower lobe. The outer transverse line, which consists of grey intercostal striations, has a pale yellowish inner edge. Subterminal line of the yellowish ground colour. Hindwings whitish with indistinct central lunule and smoky grey subterminal. Wing expanse: 29 mm. From one ♀ in November at Bardia, Cyrenaica.

treitschkei. *S. pugnax* Hbn. (Vol. 3, p. 68, pl. 18 a; Suppl. Vol. 3, p. 97). The name *pugnax*, which according to PÜNGELER is the correct denomination, is again being questioned. We propose using the name — **treitschkei** Bsd., as in Main Volume.

sodae. **S. sodae** Rmbr. (Vol. 3, p. 68, pl. 15 h; Suppl. Vol. 3, p. 97). The illustration denominated “*sodae*” in Supplement, plate 14 b, does not represent this species and the reference should be cancelled. Compare what is written under *stigmosa*:

atlantica. *S. stigmosa* Christ. (Vol. 3, p. 68, pl. 15 h; Suppl. Vol. 3, p. 98). — **atlantica** Bours. denotes the race that was hitherto held to be *sodae* from W. France, Vendée. It is darker and duller in colouration, somewhat inclined towards olive-yellowish. The markings are less distinct or almost obsolete, the postmedian has no whitish outline. Claviform stigma is much smaller and only circumscribed, it has no blackish core. Marginal band of hindwings is wider and extends to the anal angle. The illustration denoted “*sodae*” in Suppl. Vol. 3, pl. 14 b is that of *atlantica*.

6. Genus: **Polia** Tr.

praecontigua. *P. monotona* A. B.-H. (Suppl. Vol. 3, p. 99). To this must be added as a synonym: — **praecontigua** Trti.
confusa. **P. confusa** Trti. described from 6 slightly worn specimens from the Karakorum. Its classification is rather doubtful. Wing contour elongate and narrow with oblique margin. Forewings greenish ashen grey with diffuse markings, very indistinct antemedian and fine grey crenulate postmedian. These two outline a faintly darker trapeziform median area. Orbicular stigma round and pale, a few darker scales in centre. Reniform very large, elliptical outwardly, the lower lobe outlined in grey. Claviform stigma present. At margin a chain of small black lunules. Hindwings grey, paler at base, with dark central line. Wing expanse: 36—42 mm. Tarim Basin in June, July and September at an altitude of 3800—4000 m.

P. spinaciae View. (Vol. 3, p. 75; Suppl. Vol. 3, p. 101). — **plumbea** Obraztsov are very distinctly marked *plumbea*, specimens with darker median area and whitish outer margin without any yellowish dusting. From Kieff.

P. draudti Wgnr. (26 e). This recently described new species is most closely related to *proxima* Hbn. *draudti*. (Vol. 3, p. 69, pl. 16 a; Suppl. Vol. 3, p. 98). On an average it is smaller, colouration darker, inclined to blackish brown with stigmata finely and distinctly outlined in white. Especially in ♂ there is a wide whitish streak along costa. The subterminal is paler and clearer, almost straight. The pale band, that is situate inwardly towards base, is narrower. Below reniform stigma a large yellowish streak with a smaller one near the base. Differs somewhat in the genitalia from *proxima*, therefore probably a genuine species. From N. Persia (Demavend; Kendevan Pass) at altitudes of 2700—3000 m. I had previously received a somewhat paler specimen from Kars (KOTZSCH leg.).

P. zerfii Dumont is unknown to me. Forewings ochreous reddish, bestrewn with brown and with black *zerfii*, markings, brownish in median area. Orbicular stigma elongate oval, ochreous rose with brown core and black circumscription. The large reniform stigma is roseate white with black outline. It is conjoined with the orbicular stigma by a black streak. The short obtuse claviform stigma is circumscribed by black. Transverse lines sharply dentate and all with white edges. The diffuse subterminal is indicated by 3 brownish spots, the centre one trilobed, situate between veins 4 and 6. Fringes ochreous rose, interrupted by brown. Hindwings white with brownish marginal band and veins tinged with brown, forming patches between veins 1 and 4. The marginal band is intersected by white at the anal angle. Wing expanse: 32—33 mm. Tunis (Djebel es Zerf, Metlaoui). The larva is grey, paler ventrally, with brownish dorsal stripe intersected by white and with brownish subdorsal. Head rosy grey, thoracical legs transparent yellow. It feeds in winter on *Zollikoferia quercifolia*, changes in January to a brown pupa and the moth emerges in May.

P. bohemannii Stgr. (Vol. 3, p. 75, pl. 18 d). — **unicolor** Rangnow denotes specimens with dark, almost *unicolor*, unicoloured, forewings. — **nigrofasciata** Rangnow has black central band. Both from Lapland. *nigrofasciata*.

P. romieuxi Culot. A puzzling specimen captured near Florissant, Geneva, which according to BOURSIN *romieuxi*, had probably been imported from Brazil in a bale of some goods, very likely as a pupa. It would seem to be a *Perigea* related to *apameoides*.

7. Genus: **Harmodia** Hbn.

H. capsivora Drt. (Suppl. Vol. 3, p. 102) is a genuine *Epia* and not a *Harmodia* and should be classified *capsivora*, next to *evestigata* Drt.

H. drenowskii Rbl. (Suppl. Vol. 3, p. 101). This nice and large species, that was described as a *Polia*, *drenowskii*, should be placed here and it appears to be most closely related to *luteocincta*, although the genitalia differ considerably. The type is a grey form from the Carso with only very little sprinkling of orange-yellow. The species also occurs in Anatolia (Ak-Shehir) and recently a few specimens have been captured in the Elburz mountains in N. Persia. We are illustrating an anatolian specimen (pl. 26 e), that is an intermediate form between the grey Carso form and the much darker persian form that is heavily admixed with orange. The specimen illustrated agrees exactly with specimens from Macedonia (Petrina plana near Ochrida, captured in August by THURNER at an altitude of 1600 m).

H. thecaphaga sp. n. (pl. 25 k) is a nice small species, fairly closely related to *luteocincta* (Suppl. Vol. 3, *thecaphaga*, p. 103) and to be classified next to it. It is only half as large as the latter, similarly marked, somewhat wider in the wing and resembling *ignicola* Warr. by the rich admixture of orange-red. It can however be immediately recognised by the pure white hindwings, that are widely dusky grey-brown at margin. Also ground colour of forewings is a much paler and more whitish; blackish pepperings are much sparser. The arrangement of the markings is otherwise almost exactly like *luteocincta*. Abdomen is almost completely white. Genitalia differ considerably. A large number of this species has been obtained by PFEIFFER in the Elburz mountains (Kendevan Pass) in N. Persia and they are said to occur simultaneously with the equally prolific *luteocincta*. Types in the collection of DRAUDT. Time of capture 22—27 July 1936.

H. caesia Schiff. (Vol. 3, p. 77, pl. 18 h; Suppl. Vol. 3, p. 104). — **atlantis** Drt. described from Morocco, *atlantis*, has now unexpectedly been discovered in limited numbers in the Elburz mountains (Tacht i Suleiman) in N. Persia. They are almost the same as the north african specimens, but somewhat deeper in colour, the ground colour suffused with deep ochreous rose, the dark markings are very deep slate black. — **castiliana** Reisser (25 k) *castiliana*, is a spanish race, varying from *nevadensis*, by the pronounced blue ground colour with strongly contrasting blue-black markings. In basal area there is usually a small golden yellow patch, also the subterminal line has generally a slight sprinkling of yellow. Orbicular stigma is creamy white with an accessory spot of the same colour just below. From Sierra de Gredos. — **transiens** Drt. (25 k) is an intermediate form to the still paler *transiens*, *clara*. A small race with pure white median area from Ak-Shehir (Sultan-Dagh) occurring in July.

H. clarescens Drt. (25 c) also belongs to the *melanochroa* group (Suppl. Vol. 3, p. 103) and so closely *clarescens*, resembles the *transiens* form of *caesia*, that one could mistake the one for the other. Forewings chalky white, paler than the head and thorax, which have a bluish grey tone. Wings sparsely speckled with blackish with a slight bluish grey hue in basal and marginal areas, as well as at costa and inner margin. Before the centre is

a grey-blue, black speckled band. The large, almost quadrate stigmata are only edged laterally by black, between the two, a blackish patch extends from costa almost to centre of cell. Between the reniform stigma and the dentate fine black postmedian there is a blackish spot. Subterminal line is blue-grey outwardly with inner brownish shade. Fringes checked blackish grey at extremities. Hindwings whitish, faintly dusky, veins dark and wide grey-black marginal shade. A small white spot at anal angle. Anatolia (Sultan-Dagh); Sivas; Taurus (Amanus mountains). Occurring in July.

hyrcana. **H. hyrcana** Drt. (Suppl. Vol. 3, p. 105). I have now received 3 perfect specimens from the same locality (Tacht i Suleiman) as the previous ones. The original description, that was made from a worn ♀, must therefore be revised. It does not so much resemble *caesia-clara*, but is closer to *duercki* Drt. (Suppl. Vol. 3, p. 104). Ground colour is a deep ochreous red, the slate-black markings seem to merge in it and are indistinct. According to the genitalia, it also belongs in the *luteocincta* group, but has no connection with *caesia*. The specimens have been received by the courtesy of Mr. PFEIFFER of Munich. We are giving a fresh illustration of the species (pl. 26c).

asiatica. **H. asiatica** Wgnr. (Suppl. Vol. 3, p. 106). A large number of somewhat paler specimens have now been captured in N. Persia (Elburz mountains).

andalusica. **H. andalusica** Stgr. (Suppl. Vol. 3, p. 107). I have received through the courtesy of Mr. L'HOMME a number of typical grey-brown specimens from Douelle (Dep. Lot) France.

9. Genus: **Pachetra** Guen.

melanophaea. **P. fulminea** F. (Vol. 3, p. 79, pl. 19 e, f; Suppl. Vol. 3, p. 109). — **melanophaea** Zerny (26 a) denotes a very large race (48—51 mm) from the High Atlas (Morocco). It is of dark grey-brown colour with remarkably large reniform stigmata having heavy white circumscriptions. Transverse lines and subterminal sagittate marks are very bold. From Tachdirt in July at an altitude of 2—3000 m.

15. Genus: **Conisania** Hmps.

renati. **C. renati** Obth. (Vol. 3, p. 83, pl. 20 d; Suppl. Vol. 3, p. 110). We are illustrating a perfect specimen (pl. 26 a), as the illustration on pl. 14 l was made from a rather worn specimen, that did not give a proper presentation. — **vitensis** Fdz. denotes a specimen from La Vid (Burgos), has only faintly discernible white transverse lines, larger elongate oval orbicular stigma, that is not obliquely elliptical, but parallel to costa and reniform stigma sharply outlined in white.

15 a. Genus: **Trichospolas** Drt.

Related to the preceding. Proboscis developed, palpi obliquely upturned, the two basal segments with long hairs underneath. Frons with rounded projection and narrow triangular corneous plate below. ♂ antennae faintly serrate, ciliate; in ♀ simple. Thorax with fine hairs and loose small tuft on pro and metathorax. Foretibiae with one bold spur inwardly and 3 outwardly at the extremity, the fore tarsi are short and heavily spined outwardly. Forewings elongate with oblique, faintly undulate outer margin. Neuration of forewings normal, on hindwings 6 and 7 with long stalk. Only one species:

arterialis. **T. arterialis** Drt. (pl. 25 e) resembles a *Leucanidae*. Head, thorax and abdomen pale sandy yellowish. Forewings similarly, sparsely peppered with brownish black, more densely dusted between submedian fold and vein 1, again between veins 2 and 5 and also 6 and 8. All veins heavily white, no other markings. Fringes whitish with 2 faintly undulate dark dividing lines. Hindwings white, sparsely dusted. Occurring in May at Daghestan.

19. Genus: **Aglossestra** Hmps.

mariae-ludovicae. **A. mariae-ludovicae** D. Luc. (Suppl. Vol. 3, p. 111). According to BOURSIN, who has examined the types, this is identical with *deserticola* Hmps. (Vol. 3, p. 82) and should therefore be included there as a synonym.

20. Genus: **Epia** Hbn.

evestigata. **E. evestigata** Drt. (26 a) superficially closely resembles *Con. renati* Obth., but is somewhat smaller and paler grey-yellow in colouration. The markings are very similar. Orbicular stigma is large, round, whitish with brownish core. Reniform stigma is outlined in white, which is most apparent on outward edge, on the mediana the white extends somewhat towards the base. Subterminal is complete and whitish with very faint blackish sagittate marks anteriorly. Fringes checked. Asia Minor (Angora; Sivas) in May and July.

capsivora. **E. capsivora** Drt. (Suppl. Vol. 3, p. 102) should be placed before *E. mendax* (Suppl. Vol. 3, p. 111). According to specimens received from Persia, this is a genuine *Epia* with process on frons, the ♀ without extended and pointed ovipositor.

32. Genus: **Xylomania** *Hmps.*

X. conspicillaris L. (Vol. 3, p. 88, pl. 21 g; Suppl. Vol. 3, p. 114). — *anatolica* M. Hering is now illu- *anatolica*. strated (pl. 26 a) from a specimen from Ak-Shehir.

38. Genus: **Cerapteryx** *Curt.*

C. graminis L. (Vol. 3, p. 93, pl. 20 h; Suppl. Vol. 3, p. 117). As a synonym to this species we add: — *graminis*. *friesica* Bryk as the nomenclatural type.

41. Genus: **Sideridis** *Hbn.*

S. sicula Tr. (Vol. 3, p. 98, pl. 25 c; Suppl. Vol. 3, p. 120). — *bavarica* Hörh. (26 e) denotes specimens *bavarica*. recently discovered in the bavarian Jura territory in upper Franconia, that vary strikingly from type. They are larger, more robustly built, darker grey-yellow with veins standing out distinctly and delicately paler; very dusky blackish grey hindwings. It occurs end of May to mid June.

Subfamily: **Cucullianae**.

2. Genus: **Cucullia** *Schrk.*

C. tristis Bours. is to be introduced as a new name for *amoena* Stgr. (Vol. 3, p. 104), as a *C. amoena* Phil. *tristis*. was described in 1860, denoting a species occurring in Chile. BOURSIN has proved that *tristis* is a genuine species, that cannot be considered to be a form of *duplicata* Stgr. *tristis* is smaller and darker than *duplicata*. Markings are delicate and much less pronounced, ground colour is a more monotonous grey. The orbicular stigma is distinct and round, whilst in *duplicata* it is oval, the inner edge obscured by an oblique black patch extending from costa. In *tristis* the postmedian is barely indicated. *duplicata* has a claviform stigma, *tristis* has none.

C. hostilis Bours. (26 e) should be classified next to *fraterna* Btlr. (Vol. 3, p. 106, pl. 28 a). The grey *hostilis*. forewings faintly admixed with brownish. Both anterior transverse lines are absent, the posterior one however is well developed throughout its extent and marked heavily with black above the inner margin. Through these characteristics and the very dark hindwings, it differs from *fraterna*, which has no postmedian and has whitish disc in hindwings with wide dark marginal band and bold discal lunule. Wing expanse: 44 mm. Sutshanski-Rudnik (Ussuri). Only one ♀ known.

C. notodontina Bours. (26 c) most resembles *stigmatophora* Hmps. (Vol. 3, p. 109, pl. 27 e) where it *notodontina*. should be placed. Shape of wings relatively short and wide. Forewings pale brown. Transverse lines absent, except for the postmedian, which is boldly indicated at costa and inner margin, with traces in the disc. The large upper stigmata stand out rather paler from the ground, their outline indicated by brownish striations and dots. Otherwise markings are like related species, the dark spots before and behind the orbicular stigma as in *stigmatophora*, are entirely absent. The dark streak at inner margin is delicate and double, altogether all markings are delicate but distinct. The most pronounced characteristics of *notodontina* are the heavy postmedian lines on the underside of both wings, which do not occur in any of the related species, except *scrophulariphaga*, where however they are only present on the hindwings. Wing expanse: 42—44 mm. Kuldja: Thian-Shan (Aksu, Karagai Tau).

C. zerkowitzi Bours. (26 c) most closely resembles *lychnitis*, *scrophulariae* and *scrophulariphila* (Vol. 3, *zerkowitzi*. p. 109). About as large as *lychnitis* and therefore larger than the other two. It differs from all 3 by the more sharply dentate outer margin and bolder more variegated marking, especially by the more apparent presence of a distinct postmedian. The whitish patch over the dark anal streak is absent. Orbicular and reniform stigmata are scarcely paler than the ground. Hindwings in ♂ are a rich brownish with very distinct disco-cellular nervure. In ♀ hindwings are completely brown.

C. xylophana Bours. (26 c) seems most likely related to the *anceps* group (Vol. 3, p. 109, pl. 27 g). It *xylophana*. is immediately distinguishable from the latter by the more greyish colour, that inclines towards brownish black. The whitish tone of *anceps* is not apparent. Orbicular and reniform stigmata are only indicated by a few dark dots. Costa widely grey, with a brownish tinge towards the apex. Marginal line yellowish. Hindwings pale with wide dark marginal band and dark disco-cellular streak. Wing expanse: 48 mm. Described from 1 ♀ from Kuldja in mid June.

3. Genus: **Pseudocopicucullia** *Dumont.*

It should be added to the diagnosis of this Genus, that the species classified here have one bold inner and a smaller outer corneous claw at the extremity of the fore tibiae, which is not the case in *Copicucullia*.

6. Genus: **Lophoterges** *Hmps.*

L. millierei Stgr. (Vol. 3, p. 111; Suppl. Vol. 3, p. 125). — *hörhammeri* Wgnr. An illustration (pl. 26 a) *hörhammeri*. is now given of an anatolian specimen.

8a. Genus: **Allomecia** *Dumont*.

The name *Allomecia* should be withdrawn in favour of: — **Pseudomecia** *Hmps.*

11. Genus: **Metopoceras** *Guen.*

albida. *M. khalildja* *Obth.* (Vol. 3, p. 113, pl. 24 b; Suppl. Vol. 3, p. 126, pl. 16 f). — *albida* *Schaw.* is a pure whitish grey form of this very variable species, with blackish transverse stripes devoid of yellow or brown. — *rubida.* *rubida* *Schaw.* on the other hand are deep fuscous with dark transverse bands. Both from Algeria.

12. Genus: **Ammetopa** *Hmps.*

codeti. **A. codeti** *Hmps.* nec *Obth.* It has been discovered that "*Metopoceras*" *du seutrei* *Obth.* is synonymous with HAMPSON's species and it should be named — *du seutrei* *Obth.* (Suppl. Vol. 3, p. 126); — *agnellus* *Zerny* (pl. 26 d) is the Morocco form from the High Atlas; it is much darker, reddish grey-brown with scarcely distinguishable markings. Hindwings are also dusky with wide dark grey-brown marginal band. Tachdirt at end of July.

13. Genus: **Cleophana** *Bsd.*

diffluens. **C. diffluens** *Stgr.* (Vol. 3, p. 115, pl. 24 f; Suppl. Vol. 3, p. 127). — *caerulescens* *Schwing.* corresponds in its markings to the form *mauretaniae*. Forewings bluish grey in basal area, the inner median half brownish. posteriorly a black central shade that expands towards the inner margin; the rest of the wing is pale bluish grey with distinct black outer transverse line. Hindwings very pale. It has been captured at the end of July at Tachdirt in the High Atlas.

13a. Genus: **Metalopha** *Stgr.*

ingloria. **M. ingloria** *Drt.* (Suppl. Vol. 3, p. 128). — *splendida* *Amsel* should be added as a synonym.

16. Genus: **Calophasia** *Steph.*

anatolica. *C. lunula* *Hufn.* (Vol. 3, p. 116, pl. 29 b; Suppl. Vol. 3, p. 129). — *anatolica* *Drt.* (pl. 25 c) is much purer blue-grey with bold and distinct black and white markings. Reniform and claviform stigmata are a brilliant white. Hindwings white with black marginal band. Our illustration unfortunately does not portray the brilliance of the colouration. From Bithynia and from the Sultan Dagh.

angularis. **C. angularis** *Chrét.* described on p. 135 of this Supplement as a *Bombycia* is a genuine *Calophasia*, according to BOURSIN, who has examined the type. *stigmatica* *Rothsch.* and *liberatii* *Trti.* (p. 130) are synonymous and both should be deleted.

19b. Genus: **Metopodicha** *Drt.*

Should be classified next to *Derthisa* *Wkr.* (Vol. 3, p. 119; Suppl. Vol. 3, p. 132). It differs by a large cylindrical process on frons, that is hollowed out, has a sharp edge which is intersected longitudinally by a vertical narrow ridge. Palpi are shorter than in *Derthisa* with an appendiculate terminal segment. Thorax purely hairy, no intermixing of scales; there is a loose tuft on pro and metathorax. Otherwise like *Derthisa*. Only 1 species:

ernesti. **M. ernesti** *Drt.* (pl. 25 c). Forewings yellowish white. In place of orbicular stigma an oblique streak. Reniform stigma oblique and quadrate with delicate brown surround. Between the stigmata the cell has a brown patch. Posterior brown transverse line is double, the outer part extends at apex towards the costa, the inner part bends inwards there towards the base. Between veins 1 and 7 a bold brown subterminal line and at margin there is a fine brown undulate line. Hindwings yellowish white with brown marginal line. It closely resembles *Derthisa antherici* *Christ.* (Vol. 3, p. 120; Suppl. Vol. 3, p. 133, pl. 28 c). Mr. FILIPJEV was so kind as to examine the type of CHRISTOPH and declares it has no process on frons. From 1 ♂ from Achyr Dagh (Taurus) captured in September.

24. Genus: **Bombycia** *Steph.*

B. angularis *Chrét.* (Suppl. Vol. 3, p. 135) is to be withdrawn from here and placed under *Calophasia* *Steph.* (p. 256). See above.

34. Genus: **Meganephria** *Hbn.*

pontica. *M. bimaculosa* *L.* (Vol. 3, p. 129, pl. 31 h). — *pontica* *Drt.* (pl. 25 d) is a large grey-black form that is distinctly marked. Hindwings are dark grey and with 2 large black spots. Anatolia (Sultan Dagh) in September.

37. Genus: **Crino** Hbn.

C. adusta Esp. (Vol. 3, p. 131, pl. 32 c; Suppl. Vol. 3, p. 139). HEYDEMANN writes to me: "to the race — **vulturinea** H.-S. from eastern Europe, *pavida* Bsd. joins on in the south east as the representative of the *vulturinea* species in S. Russia." — **lappona** Rangnow is a small form of only 35 mm expanse; forewings are of normal *lappona* marking, but rather darker, whilst the hindwings are much paler than in *adusta*. Lapland.

C. bathensis Lutzau (Suppl. Vol. 3, p. 139). According to HEYDEMANN, the comparison with *pavida bathensis* must be erroneous, as the latter is pale. It should read: "is superficially not always easy to separate from dark *adusta* specimens, especially *carpathica* and *aterrima*." Our illustration on pl. 17 k is incorrect.

C. compitalis Drt. (Suppl. Vol. 3, p. 140). BOURSIN holds that this had better be placed in the Genus *compitalis*. *Eumichtis* Hbn. (Suppl. Vol. 3, p. 138), where it should be classified after *muscosa* Stgr. (Vol. 3, p. 130, pl. 32 b; Suppl. Vol. 3, p. 139).

38. Genus: **Agriopis** Esd.

A. aeruginea Hbn. (Vol. 3, p. 132, pl. 32 e; Suppl. Vol. 3, p. 141). — **mesembrina** Schaw. We are now *mesembrina*. able to give an illustration (pl. 26 b) of an anatolian specimen.

41. Genus: **Dryobotodes** Warr.

D. roboris Hbn.-G. (Vol. 3, p. 134, pl. 32 h; Suppl. Vol. 3, p. 141) — **taurica** Osth. is now illustrated *taurica*. (pl. 26 b).

43. Genus: **Antitype** Hbn.

A. bousseau D. Luc. (= *rhododactyla* Zerny). Forewings yellow-grey to salmon-pinkish, with somewhat darker speckles, generally with prominent ashen grey median area. Transverse lines all distinctly dentate and with slightly whitish edges on averted sides. Subterminal line irregularly serrated with faintly paler outer edge. The large stigmata are somewhat lighter than ground and not clearly defined. Orbicular is round, reniform more quadrate. There are fairly heavy blackish dots on costa above the latter and at the origins of the transverse lines. Fringes pale and with broad grey-brown checks. Hindwings whitish with dusky veins and margin, faint discal spot and postmedian line. Fringes reddish yellow or rose; in the ♀ hindwings are more greyish. Antennae have still shorter pectinations than the otherwise somewhat similar *rebecca* Stgr. - Wing expanse: 37—40 mm. From W. Algeria and Morocco.

A. rosea Rothsch. (Suppl. Vol. 3, p. 142). — *glaisi* D. Luc. must be added as a synonym to this species. *rosea*.

A. manisadjiani Stgr. (Vol. 3, p. 136, pl. 33 c). — **rediens** Wgnr. is a form in which basal and marginal areas of wing are shaded over, so that the whole appears more unicolourous. WAGNER has described the adult larva as olive-green to olive-brown, dorsally delicately marbled with blackish. It has a wide dark dorsal stripe with pale intermediate line. On each side there is a fainter blackish subdorsal and wide yellowish green lateral line with whitish upper edge. Ventrally it is grass green; segmental junctures reddish, head and legs honey-yellow. The larva fed on dandelion and was fullfed in May, pupating in the earth, the moth emerging in August.

A. grisea D. Luc. (Suppl. Vol. 3, p. 144). According to information from BOURSIN, this is synonymous *grisea*. with *Bryomima johanna* Stgr. (Vol. 3, p. 139, pl. 34 d) and must therefore be deleted from here.

A. apora Stgr. (Vol. 3, p. 137, pl. 33 g). BOURSIN has written to say, that this name should be withdrawn, for after an examination of the type, it must be considered synonymous with *Crymodes bischoffii* H.-S. (Vol. 3, p. 176, pl. 42 a; Suppl. Vol. 3, p. 161). Therefore the species that HAMPSON held to be *apora* and which he described in his Cat. Lep. Phal. VI, p. 366 and illustrated on pl. CIV, fig. 29, will have to be renamed. I would propose to use the name of its re-discoverer and breeder, who sent me a ♂ for inspection, viz:

A. schwingenschussi nom. nov. (= *apora* Hmps. nec Stgr.) (pl. 26 g). Head and thorax white, with slight brownish black admixture. Palpi and frons laterally with dark spots, abdomen inclined to yellowish brown. Forewings grey-white, somewhat speckled with brownish black, more heavily dusted in central area. Both stigmata are large, somewhat quadrate, whitish with indistinct brown circumscriptions. Transverse lines as in *dubia*, the subterminal line indicated by black-brown scales on its inner edge, showing rather longer dentations on veins 2—4. Hindwings quite pure white in ♂, shaded with grey and with darker marginal band in ♀. Palestine, Lebanon in October. No description of the larva has been given.

A. astfälleri Schaw. (pl. 26 b) was overlooked and omitted. It can best be compared to *suda* Hbn.-G. (Vol. 3, p. 138, pl. 33 i; Suppl. Vol. 3, p. 144) and is of the same size. Ground colour has an olive-yellowish tone and is speckled with blackish. Central area shaded rather darker by the wide diffuse median shade. Basal area is not so pale as in *suda*, the complete white subterminal line stands out clearly from the dark peppered ground. Fringes with bold checks. Hindwings somewhat dull whitish, in the ♀ completely dark blackish grey with distinct postmedian and subterminal lines. Hitherto only obtained in S. Tyrol (Schnalser valley).

47. Genus: **Bryomima** Stgr.

johanna. **B. johanna** Stgr. (Vol. 3, p. 139, pl. 34 d). — *grisea* D. Luc. (Suppl. Vol. 3, p. 144) should be added as synonym to this species. It therefore would appear to also occur in Tunis.

53. Genus: **Rhynchaglaea** Hmps.

R. scitula Btlr. (Vol. 3, p. 144; Suppl. Vol. 3, p. 148). The reference to the plate should read 18 k instead of 18 e.

58. Genus: **Conistra** Hbn.

elegans. *C. raccinii* L. (Vol. 3, p. 147, pl. 36 a; Suppl. Vol. 3, p. 149). — **elegans** Hörh. is introduced for a form with dark chestnut brown colour with distinct black fasciae, as in *spadicea* Hbn., combined with pale yellow circumscription to orbicular stigma; reniform stigma filled with pale yellow; wide yellow marginal band. S. Bavaria.

graslini. *C. rubiginea* F. (Vol. 3, p. 148, pl. 36 e; Suppl. Vol. 3, p. 149). — **graslini** Stgr. In this form, which we are illustrating on pl. 26 e, a mistake was made in the Main Volume in placing it under *standingeri* Grasl.; it is however a quite usual *rubiginea* form, that has no connection with *staudingeri*.

62. Genus: **Amathes** Hbn.

kindermanni. **A. kindermanni** F. v. R. (Vol. 3, p. 151, pl. 37 c; Suppl. Vol. 3, p. 151). The adult larva, according to E. P. WILTSHIRE is green or rosy brown with very distinct wide white or yellowish white lateral stripes. In the brown form the larva is green ventrally. Head ochreous grey but orange in the brown form. The double undulate dorsal and subdorsal lines are grey, warts white with black core; spiracles orange with a black spot behind each spiracle on segments 2—9. It feeds till March on low plants. The moth flies in December and January.

mansueta. **A. mansueta** H.-S. (Vol. 3, p. 152, pl. 37 k; Suppl. Vol. 3, p. 152). According to E. P. WILTSHIRE the adult larva is blackish grey with white hairs, marbled with blackish and whitish, suffused with orange between segments 4—7; with large yellowish white spots ringed with black above the dark edged subdorsal line. It has a dark grey double dorsal line. It feeds till February on low plants and the moths emerge in December.

rufa. *A. macilenta* Hbn. (Vol. 3, p. 151, pl. 37 e; Suppl. Vol. 3, p. 152). — **rufa** Hörh. is of reddish ochreous ground colour, with which the usually distinct brownish median and marginal lines merge, whilst the yellow line that follows the marginal band stands out more prominently. Described from S. Bavaria.

lactiflora. **A. lactiflora** Drt. (Suppl. Vol. 3, p. 151, pl. 19 a). This species has now also been discovered near Marash in the Taurus, where it occurs in good quantities at end of October. beginning of November.

64. Genus: **Cosmia** Tr.

rubrargo. *C. fulvago* L. (Vol. 3, p. 154, pl. 24 i, k; Suppl. Vol. 3, p. 153). — **rubrargo** Hörh. has ochreous red forewings, the usual markings of the normal *fulvago* appear in the ground in a somewhat paler reddish yellow shade. Stigmata are dark with pale core. Hindwings quite white. Bred from larvae obtained near Leipzig.

65. Genus: **Telorta** Warr.

mixtificata. *T. acuminata* Btlr. (Vol. 3, p. 156, pl. 28 k). — **mixtificata** Fdz. is not olive-grey with reddish brown lines having pale ochreous edges, but pale red-brown with yellow lines and yellow edges to stigmata. Hindwings paler yellow with grey discal and inner marginal areas. From Hunan.

Subfamily: **Zenobiinae** (= *Amphipyrinae*).

9. Genus: **Parastichtis** Hbn.

subrurea. *P. rurea* F. (Vol. 3, p. 164, pl. 39 e; Suppl. Vol. 3, p. 156). — **subrurea** Pet. is not identical with *combusta*. These are very dusky specimens inclined to grey-brown with very distinct markings; especially the transverse lines and the reniform stigma (that is not picked out with yellow) are very distinct. Described from Esthonia.

maroccana. *P. monoglypha* Hfngl. (Vol. 3, p. 165, pl. 39 g; Suppl. Vol. 3, p. 156). — **maroccana** Zerny differs from all known races by the pale yellowish white hindwings with strongly contrasting, fairly definitely outlined marg-

inal band. Forewings more or less dark brownish violet-grey, the markings clear and distinct, especially the orbicular which is sharply outlined in black. Also the sagittate marks at subterminal line are very striking. Tachdirt, Morocco in July at an altitude of 2300—2700 m. — **dissoluta** *Krul.* has shorter and wider forewings. *dissoluta.* Ground colour is yellowish white, markings deep brown, costal area scaled with grey-brown. Between claviform stigma and posterior transverse line there is a heavy black streak. Apex is whitish, the rest of the marginal area is blackish brown. Hindwings white with brown marginal band. Probably this is only aberrative. From Wiatka. — **inversa** *Derenne* is a monotonous glossy black aberration from base to posterior transverse line, on *inversa.* the other hand the subterminal and marginal areas are white. Markings black, the two upper stigmata white. the reniform having a black central streak. Described from Spa.

P. lateritia *Hfngl.* (Vol. 3, p. 166, pl. 39 i; Suppl. Vol. 3, p. 157). — **contraria** *Heydem.* denotes specimens *contraria.* with costal and marginal areas of forewings a deep dusky brown, contrasting strongly from the paler leathery yellow to buff of inner marginal half. The origins of the lines on costa are also leathery yellow dots, the lines themselves being deep black. These specimens belong to the deep brown race *borealis* *Strd.*, that also has distinct black markings. From Schleswig-Holstein. — **albicingulata** *Warn.* has orbicular and reniform stigmata with *albicingulata.* yellow-white surrounds.

10. Genus: **Oligia** *Hbn.*

The name **Procus** *Oken* (1815) should be utilised for this Genus.

Procus.

O. strigilis *Cl.* (Vol. 3, p. 172, pl. 40 i; Suppl. Vol. 3, p. 159). HEYDEMANN writes in regard to this species: *strigitis.* "CLERCK's illustration shows and description reads: *strigilis* *L.* nebulous grey-greenish patches in marginal area, which is not pure white (as in *fasciata* *Tutt.*). In such a case as I have meanwhile been able to ascertain: *amoena* *Krul.* = *strigilis* *Cl.* LINNÉ only mentions a "whitish marginal band".

D. faroulti *Rothsch.* (Suppl. Vol. 3, p. 160). HEYDEMANN points out that there is a further material *faroulti.* specific characteristic that helps to differentiate from similar *literosa* forms. In *faroulti* the very distinct black are on the collar, that all *literosa* have, is absent.

O. bicoloria *Vill.* (Vol. 3, p. 173, pl. 40 l; Suppl. Vol. 3, p. 160). — **pseudonychina** *Heydem.* corresponds *pseudonychina.* to the pale unicoloured *onychina* form of *literosa* and is monotonous whitish ochreous yellow or grey-yellowish. Schleswig-Holstein. HEYDEMANN also writes to me: — "I consider it incorrect to limit the — f. *longistriata* *Warr.* so narrowly to represent only specimens like the illustration with a narrow black straight streak on submedian fold and to separate — **latistriata** *Hoffmeyer* with a broad streak and to specially denominate all variations *latistriata.* of ground colour in the way SCHULTZ has done. The variation *longistriata* occurs additionally in all other coastal forms combined with these colour variations." The *pseudonychina* form with black longitudinal streak has been named — **pseudonychina-striata** *Schultz.* — **antithesis** *Schultz* is a further form, forewings chalky white in outer *pseudonychina-striata.* half, pale brownish inwardly. In centre of wing above the inner margin a deep black V-shaped mark. Orbicular stigma white with dark centre, ringed with black inwardly and outwardly. Only the inner edge of the reniform stigma is visible. Subterminal line is edged outwardly sharply by black-brown. Fringes pale and with dark cheeks. Hindwings unicoloured grey. Both the latter forms from Borkum.

11. Genus: **Eremobia** *Steph.*

E. ochroleuca *Esp.* (Vol. 3, p. 175, pl. 41 b). — **asiatica** *Drt.* (pl. 26 f) is smaller than european specimens. *asiatica.* Markings sharply brown on whitish ground, but they are reduced. Marginal area almost pure white. Fringes without checks. Hindwings pure white with blackish marginal band. Anatolia (Sultan Dag) in July.

12. Genus: **Gerbathodes** *Warr.*

G. ypsilon *Btlr.* (Vol. 3, p. 175, pl. 42 b). The illustration was poor. A better one is now given (pl. 26 f). *ypsilon.*

14. Genus: **Crymodes** *Guen.*

C. platinea *Tr.* (Vol. 3, p. 176, pl. 41 d; Suppl. Vol. 3, p. 161). — **splendida** *Reisser* is similar to *reisseri* *splendida.* *Bub.* and the following form from Morocco, but the markings are so variegated and complete, that it might be taken for a separate species. Ground colour is a rich creamy yellow with dark grey dusting, the median and postmedian areas and also the basal area remaining paler. The transverse markings are distinct and clear and pure grey-black. Subterminal line is well developed, sagittate marks large and bold. Hindwings much paler in basal area. Sierra de Gredos. — **atlantica** *Zerny* (pl. 26 e) is the form from Morocco mentioned on p. 161. It *atlantica.* is very close to *reisseri*, but is paler and has more of a yellowish tone. The subterminal line is a pale brownish yellow. Tachdirt in July.

C. montana *H.-S.* (Vol. 3, p. 176, pl. 42 a). The illustration in Main Volume was quite unrecognisable *montana.* and we are giving here an illustration (pl. 26 f) of a persian specimen from Elburz. It is very questionable, whether this is not merely a form of *platinea*.

mutica. **C. mutica** Chr. (Vol. 3, p. 176, pl. 41 d; Suppl. Vol. 3, p. 161). This is not a genuine species, but should be classified as a subspecies of *dumetorum* Hbn. G. (Vol. 3, p. 177, pl. 42 a; Suppl. Vol. 3, p. 161) from which it varies little.

bischoffii. **C. bischoffii** H.-S. (Vol. 3, p. 176, pl. 42 a; Suppl. Vol. 3, p. 161). As mentioned on p. 257, we have to add to this species, *apora* Stgr. (antitype!) as synonym. According to E. P. WILTSHIRE the larva feeds on Sonchus, Taraxacum and other Compositae in November and December. It is greenish grey, finely marbled with blackish, with indistinct subdorsal and with a black mark lengthwise on segments 2—5. On the other segments this marking is only indicated by fine blackish specks. The double dorsal line is interfilled with white anteriorly on each segment and edged by a dark "V" or "Y" posteriorly. The moth emerges in September.

zeta. **C. zeta** Tr. (Vol. 3, p. 176, pl. 41 e; Suppl. Vol. 3, p. 161). HEYDEMANN has examined the 3 forms: *zeta*, *pernix* and *curoi* and the ♂ genitalia agree so exactly and vary in 4 characteristics so constantly from *maillardi* Hbn. G., that it must be considered as proved that the two are different and both have the right to specific rank. A supposition recently made, that *curoi* is a form of *platinea*, does not appear correct.

furva. **C. furva** Hbn. (Vol. 3, p. 177, pl. 41 f; Suppl. Vol. 3, p. 162). In his Supplement to TUTT's British Noctuae, TURNER seems to have erroneously placed TURATI's form *leucorena* (synonymous with the older *occlusa* Esp.) here (p. 359). However it should be classified with *Dryobota furva* Esp. (Vol. 3, p. 128, pl. 31 f; Suppl. Vol. 3, p. 138).

15. Genus: **Sidemia** Stgr.

zollikoferi. **S. zollikoferi** Frr. (Vol. 3, p. 178, pl. 41 h; Suppl. Vol. 3, p. 162). This strange migrant has recently been captured in Germany at Gera and Leipzig, where one specimen each was taken in September. Further 3 specimens have been caught in E. Prussia, from around Königsberg, also in September. It has also been observed at Knista, Närke in Sweden in September. The more remarkable is a capture advised from Liptow, where 1 specimen was taken in June, which would seem to indicate that perhaps there are 2 generations. Seven specimens were captured in September 1934 in south Kent in England.

glaisi. **S. glaisi** Luc. (Suppl. Vol. 3, p. 164). According to BOURSIN this is identical with *oberthüri* Rothsch. (Suppl. Vol. 3, p. 163).

17. Genus: **Heterographa** Stgr.

tumulorum. **H. tumulorum** Bours. is very closely related to the other 3 species. Forewings brownish, costa somewhat paler with whitish subbasal, that is edged with black at inner margin. Black basal streak extending to anterior transverse line, which is whitish. Claviform stigma edged with black. Orbicular stigma large, obliquely elongate. Reniform stigma somewhat constricted and with black circumscription. Postmedian whitish, well defined, the space behind brownish. The distinct whitish subterminal forms a very sharp angle inwards over vein 4, below the apex a "V" and extends from vein 4 fairly parallel to the outer margin as far as the inner angle. The space behind is pale brown with whitish veins, small black arcs on margin. Fringes whitish admixed with dark brown. Hindwings dark brown with bold discal spot and dark postmedian, that is edged outwardly with whitish. Fringes whitish. Wing expanse: 29 mm. From Kurgan-Tjube (Russian Turkestan) in June.

21. Genus: **Margelana** Stgr.

As already mentioned under the 22. Genus: *Eremopola* Warr., the species *discrepans* and *vaternosa* do not appear to be congeneric with the two genuine *Margelana*: *versicolor* Stgr. and *flavidior* Wgnr. Count TURATI has established a new Genus for a species that seems related to *discrepans*:

21b. Genus: **Draudtiana** Trti.

Palpi short, porrect with very short terminal segment. Proboscis short but distinctly present. ♂ antennae bipectinated. Thorax densely haired. Probably *discrepans* should also be classified here.

castanea. **D. castanea** Trti. Forewings dark chestnut brown with black transverse lines. Orbicular and reniform stigmata scarcely contrasting in the dark ground colour. Undulate subterminal line very faintly edged paler outwardly; beyond it black marginal lunules. Hindwings white, peppered somewhat with brownish towards the margin and with distinct deep brown marginal lunular streaks. Wing expanse: 33 mm. Cyrenaica (Bakur) in October.

discrepans. **D. discrepans** Stgr. (Vol. 3, p. 181, pl. 41 l; Suppl. Vol. 3, p. 164). A new locality for this species is Cyrenaica. Count TURATI has obtained a number of specimens from there.

23b. Genus: **Anataelia** Drt.

As the name *Anataelia* Bolivar 1899 was given to a *Forficulidae* Genus, I now give the new denomination

Paranata- — **Paranataelia** for this Genus.
elia.

27. Genus: **Palluperina** *Hmps.* (erroneously printed as "26. Genus" in Suppl. Vol. 3. p. 166).

P. rubella Dup. (Vol. 3, p. 186, pl. 43 e; Suppl. Vol. 3, p. 168). — *sericea* Car. is a nice pale yellowish *sericea*. grey form with somewhat darker median area, the entire ground of wings interspersed with snow-white hairs and scales. Rumania (Silver coast) in November and December, a form that has adapted itself to its environment.

P. dumerilii Dup. (Vol. 3, p. 185, pl. 43 d; Suppl. Vol. 3, p. 168). — *indistincta* Rbl. (described as an *Episema*) is synonymous with the form — *aequalis* Schaw. *aequalis*.

P. vulpecula Led. (Suppl. Vol. 3, p. 168). There must have been some misconception here — *vulpecula* *vulpecula*. Ev. was indicated by ERSCHOFF as a "*Leucania*" between *lithargyria* and *albipuncta*. This species from the Urals, described as a "*Cosmia*", of which I was unfortunately unable to obtain the original description, is according to FILIPJEV (writing to E. DÖRING) a *Palluperina* close to *ferrago* or better classified near *subaquila* and *hedeni* (Vol. 3, pl. 186, pl. 43 f); *vulpecula* Led. had best be left in its present classification under *Cosmia* (Vol. 3, p. 155, pl. 28 f).

31. Genus: **Euplexia** *Steph.*

E. hönei O. B.-Haas (Suppl. Vol. 3, p. 169) is synonymous with *gemmifera* Wkr. (Vol. XI, p. 147, pl. 16 i) *hönei*. from Sikkim and Assam. The latter name should also be utilised for specimens from the palaearctic territory, *gemmifera*. as the species has now also been found to be distributed widely in China.

45. Genus: **Polyphaenis** *Bsdv.*

P. propinqua Stgr. (Vol. 3, p. 198, pl. 44 h). According to E. P. WILTSHIRE the larva is to be found *propinqua*. in February at night on honeysuckle. It is brown with black-brown interrupted dorsal line in the shape of sagittate marks, conjoined by pale delicate lines that have darker edges and which form the whole to a sort of chain. It pupates between leaves in a silken cocoon. The moth emerges in April.

P. subsericata H.-S. (Vol. 3, p. 198, pl. 42 l). The illustration was not satisfactory and we are giving *subsericata*. a good illustration (pl. 26 f) of a specimen from Marash, Taurus.

64a. Genus: **Esteparia** *Fdz.*

This Genus, as already mentioned on p. 239 must be held to be a Subgenus to the Genus: **Oedibrya** *Hmps.* (= *Meroleuca* *Hmps.*)

71. Genus: **Athetis** *Hbn.*

The discussion of this Genus must be left to the last, as a fundamental revision, that is in work, has not yet been published and this will have to be taken into consideration.

80. Genus: **Balsa** *Wkr.*

B. malana Fitch. (Suppl. Vol. 3, p. 183). The author's name: *Fisch.* was a printer's error. *malana*.

84. Genus: **Scioptila** *Warr.*

S. eriopoda H.-S. (Vol. 3, p. 220, pl. 47 a; Suppl. Vol. 3, p. 183). According to E. P. WILTSHIRE the *eriopoda*. adult larva is dark grey or brown with white frosted rhomboidal markings on dorsum. These have a dark edge and each contain 2 black dots on segments 4—10. Laterally there is a dark zigzag line with a bold white spot on the 4th and 5th segments. It feeds on Rubia, Ephedra, Honeysuckle and Rosemary and is full fed in March. when it pupates in a paper-like puparium between leaves. The moth emerges at the beginning of September in the Lebanon district.

86. Genus: **Hadjina** *Stgr.*

H. delicata Trti. Forewings brownish black, coarsely scaled. Transverse lines interrupted and indist- *delicata*. inctly dark. Orbicular stigma is a small pale oval, reniform stigma whitish with very fine black circumscription, in elongate "S" shape. The subterminal line consists of a row of whitish lunules and there are small black striations on margin. Fringes with dark dividing line. Hindwings impure whitish with wide dusky marginal shade and whitish fringes. Wing expanse: 27 mm. Cyrenaica (Maaten Giofer). One ♀ in March.

H. indelicata Trti. (26 f). Forewings sparsely flecked with darker granules on red-brownish whitish *indelicata*. ground. Wing contour as in *viscosa* Frr. Both upper stigmata scarcely discernible, of the same shape as in the previous species *delicata*. Transverse lines consist of slightly darker specks between the veins. The irregular

subterminal line is whitish with darker inner fascia. Hindwings impure rosy whitish, faintly darker at margin. Wing expanse: 27—28 mm. Cyrenaica (Bardia) in November.

90. Genus: **Gortyna** Tr.

nigrobrunneata. *G. leucostigma* Hbn. (Vol. 3, p. 223, pl. 46 a). — *nigrobrunneata* du B.-R. are specimens that are completely black-brown with yellow stigma. — *traegeri* du B.-R. denotes specimens that are completely devoid of markings and glossy pale grey, only the reniform stigma is white, the shade between subterminal and outer margin is only visible in oblique lighting. Cranz in E. Prussia.

91. Genus: **Apamea** Tr.

jutlandica. *A. crinanensis* Burr. & Pierce (Suppl. Vol. 3, p. 186). — *jutlandica* Hoffmeyer & Knudsen is the danish form, specimens with small, dark and narrow wings.

93. Genus: **Hydroecia** Guen.

murciegoi. **H. murciegoi** Fdz. (Suppl. Vol. 3, p. 188). As was to be supposed, this species proves itself to be synonymous with *hucherardi* Mab. (p. 187).

argillago. *H. cervago* Ev. (Vol. 3, p. 225, pl. 46 c). — **argillago** Drt. (26 g) is a small clay coloured form in contrast to the fuscous type; the markings are identical. From Van in Turkish Armenia.

ifranæ. *H. xanthenes* Germ. (Vol. 3, p. 227, pl. 46 f; Suppl. Vol. 3, p. 188). — **ifranæ** Le Cerf is a small form of dark yellow-red ground colour, speckled with brown and admixed with ashen grey. The large pale yellow orbicular stigma is ringed with black and has a brown core. Reniform stigma is narrow with 5 or 6 yellow dots in its surround. Transverse lines are almost obsolete, postmedian band is ashen grey and not dentate, with diffuse brownish edge on both sides. Marginal area is brownish. Hindwings red-brownish white, veins and marginal streaks grey. Morocco (Central Atlas) in November.

100. Genus: **Elydna** Wkr.

bytinskii. **E. bytinskii** Schaw. (26 f). Forewings violet-brown, the black transverse lines very delicate, the posterior one with black dots on the veins. Orbicular stigma is a black dot, reniform with fine black circumscription, it contains 6 white dots. Between the stigmata is a dark shadow-like band. The distinct subterminal line is pale, the marginal line pale with small black striations. Hindwings darker brown than forewings, with a dark discal spot that is situated close to the base and the costa. Wing expanse: 32 mm. China (Sin-foo).

100a. Genus: **Chrysonicara** n. gen.

This new Genus is very similar to the Genus *Nicara* Moore that relates to a species occurring at Sikkim. Proboscis developed. The upturned palpi are very short with extremely small terminal segment. Frons smooth. Thorax with vestiture of hairs and scales and extended tuft on pro and metathorax. Abdomen without tufts. Venation normal, only on hindwings 6 and 7 with short stalk. I am creating the Genus for the "*Chrysoptera*" *aureus* from Tsekou described by Mr. O. BANG-HAAS, which is not a *Phytometrinae*.

aureus. **Ch. aureus** O.B.-H. (Suppl. Vol. 3, p. 223). We are able to give an illustration of this fine species (pl. 26 g). The specimens are from Likiang in north Yunnan, where a large number were captured by HÖNE.

102. Genus: **Calymnia** Hbn.

bredemanni. *C. affinis* L. (Vol. 3, p. 230, pl. 47 d; Suppl. Vol. 3, p. 189). — **bredemanni** Warn. is probably a northern form, that may represent the type there, with almost or completely black hind wings.

107. Genus: **Enargia** Hbn.

badiofasciata. *E. regina* Stgr. (Vol. 3, p. 233, pl. 48 a; Suppl. Vol. 3, p. 190). — **badiofasciata** Drt. (26 g) corresponds to the similarly denominated *trapezina* form. The triangular median area which is dark olive-brown and has a blackish reniform stigma, stands out from the pale yellowish grey ground. The subterminal row of black dots is distinct. From Van (Turkish Armenia).

109a. Genus: **Sedina** Urbahn.

büttneri. **S. büttneri** Her. (Vol. 3, p. 12, pl. 2 d; Suppl. Vol. 3, p. 191). This rare species has been discovered at some new localities such as in East Pomerania and from around Königsberg (E. Prussia). At the latter place the moth was captured at a street lamp in the centre of the town.

110. Genus: **Arenostola** *Hmps.*

A. zernyi *Schwing.* is closely related to *dulcis* *Obth.* (Suppl. Vol. 3, p. 192, pl. 22 f) but is more robustly *zernyi*. built and with wider wings. In colouration it reminds one of *Sideridis andereggii* *Bsd.* Forewings are yellow-grey, peppered with blackish grey, so that the veins, that retain their yellowish colouration stand out prominently. Cell and inner margin remain paler. Fringes are yellowish, intersected by a grey line. Hindwings uniformly grey-black with yellowish fringes. Wing expanse: 26—29 mm. High Atlas (Morocco) Tachdirt.

111. Genus: **Archanara** *Wkr.*

A. stättermayeri *Schaw.* most closely resembles *neurica* *Hbn.* (Vol. 3, p. 237, pl. 49 h; Suppl. Vol. 3, p. 193). *stättermayeri*. Wing contour is more rounded, ground colour considerably darker, at least it is so in the only ♀ so far known, being almost blackish brown. Orbicular and reniform stigmata have fine whitish circumscriptions, the latter with 2 white dots posteriorly. Only traces of the outer transverse line are visible. There are small black striations before the margin, fringes are somewhat paler. Hindwings dark black-brown, veins rather lighter with striking pale fringes. Underside without cell spots. Tegulae with white tips. Wing expanse: 34 mm. Bône, Algeria, in June.

E. laudeti *Bsd.* (Vol. 3, p. 242, pl. 48 i; Suppl. Vol. 3, p. 195). — **latestrigata** *Ams.* is a race with remarkably wide marginal band on hindwings. From Palestine. Perhaps this is synonymous with *umbrata* *Schultz*?

Subfamily: **Melicleptriinae.**

5. Genus: **Aedophron** *Led.*

A. phlebophora *Led.* (Vol. 3, p. 247, pl. 50 m). Even in quite freshly emerged specimens, the veins are tinged with brownish. — **postnigra** *f. n.* denominates specimens with blackened hindwings and — **postrosea** *f. n.* (26 g) such with hindwings suffused with rose. This roseate hue extends to the forewings in extreme cases.

A. monotonia *Ams.* is described as being very similar to *venosa* *Christ.* (Vol. 3, p. 248, pl. 51 a) and ground colour is the same. However the dark streak on fore and hindwings at close of cell is absent and the wings are therefore devoid of markings. Veins stand out prominently and fringes are a purer white. Wing expanse: 29 mm. Captured in March in the Wadi el Kelt near Jericho.

Subfamily: **Heliothidinae.**

9. Genus: **Sympistis** *Hbn.*

S. melaleuca *Thnbg.* (Vol. 3, p. 254, pl. 50 e; Suppl. Vol. 3, p. 199). — **trimacula** *Rangnow* has outstanding grey-white claviform, orbicular and reniform stigmata. — **leucofasciata** *Rangnow.* The orbicular and claviform stigmata conjoin forming a grey-white transverse band. the reniform stigma is submerged in the dark markings. — **nigricata** *Rangnow* has completely blackened forewings. All 3 forms described from Lapland.

S. funesta *Payk.* (Vol. 3, p. 255, pl. 50 e; Suppl. Vol. 3, p. 199). — **nigrofasciata** *Rangnow.* The wide median band of forewings is almost completely black, only the two stigmata remain picked out in pale colour. Lapland.

S. devagor *Kozh.* (Suppl. Vol. 3, p. 199) (1923) has as synonym *Sympistis bieneri* *Rbl.* (1924) and not *devagor*. *Heliothis bieneri* *Rbl.* (Suppl. Vol. 3, p. 200).

11. Genus: **Cteipolia** *Stgr.*

C. acrophila *Hmps.* belongs to a II Section with veins 3 and 4 on hindwings not stalked. Forewings grey, speckled with brownish black, with an indistinct obsolescent subbasal and similar antemedian. The posterior transverse line is somewhat more distinct, dentate with grey outer edge. Both upper stigmata are small whitish dots that are more or less confluent and with indistinct blackish outline. Subterminal line with dark inner edge; marginal black dots. Hindwings thinly scaled, grey and dusted with black-brown. Wing expanse: 24—28 mm. Described from Kashmir, but also occurring in the Karakorum (Tarim Basin).

Subfamily: **Erastrinae.**

4. Genus: **Leptosia** *Guen.*

L. velocior *Stgr.* (Vol. 3, p. 260, pl. 51 b). — **deserta** *Ams.* is a form from the deserts of Palestine. It is not of the usual grey and rufous colouration of typical specimens, but a pale yellowish brownish grey. Markings are the same as *velocior*.

6. Genus: **Eublemma** Hbn.

- atlantica.* *E. suava* Hbn. (Vol. 3, p. 262, pl. 51 c; Suppl. Vol. 3, p. 202). — **atlantica** Schaw. & Stättermayer denotes a race that is larger on the average and has grey-black instead of brownish forewings. Median band is almost black, as is occasionally also the base and almost always the outer margin. The dark central band has either no white edge or only vestiges of white. Subterminal line is almost invisible. Hindwings black with or without curved white line. — *vinula* Schaw. is an aberration of the above mentioned form, forewings are suffused with vinous red. Bône, Algeria in June.

10. Genus: **Porphyrinia** Hbn.

- symphona.* **P. symphona** L. B. Prout (Suppl. Vol. 3, p. 204). According to the opinion of ZERNY this can only be considered to be an *albida* form with hindwings suffused with grey-brown with a postmedian whitish transverse band, although specimens with white hindwings also occur. — *alpina* Schwing. occurs at an altitude of 2700 m at Tachdirt in the High Atlas. The white ground colour of forewings is almost completely covered by scales of a grey-brown or nut-brown colour and the band markings are more prominent and contrasting. — *marginata.* **marginata** Schwing. is probably an aberrative form in which the inner two-thirds of both fore and hindwings are unicoloured white, the outer third being dusky grey-black with distinct white subterminal line and black marginal dots.
- schawerdae.* *P. elychrysi* Ramb. (Vol. 3, p. 264, pl. 51 e). — **schawerdae** Byt.-S. denotes a much larger and darker form with bold olive-green tone, reduced white markings and much narrower white median band. Aritzo, Sardinia. — *dannehli* Byt.-S. is the palest form from central Italy (Alban and Sabine mountains), pale olive-green to olive-yellow with wide white bands, the dark central area being reduced to a band.
- zernyi.* *P. pura* Hbn. (Vol. 3, p. 269, pl. 51 i; Suppl. Vol. 3, p. 204). — **zernyi** Agenjo is a small form. Wings are white with a mother-of-pearl sheen, central line enwidened, subterminal area with a greyish suffusion. Marginal line is bold; as in *striata* a blackish longitudinal streak extends towards the margin from the cell spot without however reaching quite so far. Hindwings faintly dusky. Burgos, Spain.
- purulenta.* **P. purulenta** Trti. is related to *pura*. Forewings white with a somewhat ivory-yellowish tone and faintly suffused with rose. A straight brownish band just before the centre; the brown marginal line and black cell spots are quite absent, but there are 4 small black dots in apical area. Hindwings white. Wing expanse: 18 mm. Cyrenaica in May.
- purinula.* **P. purinula** Trti. is only half as large as the preceding species. Forewings pure white with straight brownish central band, as in *purulenta* and with a few sparse brownish scales in marginal area at apex and anal angle. Fringes white without marginal line. Hindwings glossy white. Wing expanse only 8 mm. Somewhat resembles *pura*, but the 2 black cell spots are absent. Cyrenaica in May.

28a. Genus: **Coelites** Trti.

- Coeloturatia.* This generic name is occupied and must therefore be substituted by — **Coeloturatia** Strd.

29. Genus: **Eustrotia** Hbn.

- rufotincta.* *E. uncula* Cl. (Vol. 3, p. 280, pl. 52 e; Suppl. Vol. 3, p. 207). — **rufotincta** Daniel & Korb has a rich fuscous ground colour, which is deeper towards costa. The flesh coloured streak on costa is roseate, as is also the reniform stigma. The pale marginal line is faint and yellowish, the paler whitish edge towards the margin is absent. Hindwings with reddish hue. Central Hungary.

30. Genus: **Eulocastra** Btlr.

- mesozona.* **E. mesozona** Hmps. (Vol. 3, p. 282, pl. 52 f). Count TURATI asserts that *mesozona*, described from Aden, is a separate species, differing from related forms by the central band that projects outwards in two dentations.
- mediana.* **E. mediana** Stgr. (Vol. 3, p. 282) is not synonymous with the preceding species, but, as was already surmised by HAMPSON, a genuine species. It differs from *mesozona* by the central band, which is angulated only once outwardly below the costa and its inner outline forms an open obtuse angle towards the base. I have specimens from Jerusalem before me and an illustration is now given (pl. 26 g).
- bipartita.* **E. bipartita** H.-S. (Vol. 3, p. 282, pl. 52 g) is a very rare species, only known to occur in Sicily. The median band is straight, enclosed by two parallel brown lines and without any projecting angles. In the ♀ basal and marginal areas are much darker brown than in ♂, also the hindwings are much darker.
- platyzona.* *E. capnoëssa* Zerny (Suppl. Vol. 3, p. 208) is synonymous with "*Colobochyla*" **platyzona** Led. (Vol. 3, p. 398) and should be classified in the Genus *Eulocastra*.

Subfamily: Acontianae.

19. Genus: **Arcyophora** Guen.

A. dentula Led. (Vol. 3, p. 300). We are giving an illustration of a persian specimen of this insignificant *dentula*. little species (26 g).

Subfamily: Catocalinae.

1. Genus: **Mormonia** Hbn.

M. dilecta Hbn. (Vol. 3, p. 302, pl. 54 a) — *laetitia* Schaw. is the corsican form of grey ground colour, *laetitia*. generally with white and not yellowish brown stigmata; the white colour also occurs at inner margin at the termination of one or two transverse bands. Hindwings are more inclined to be carmine with narrower black zigzag bands. Corsica (Vizzavona, Evisa).

M. scortorum Leech (Vol. 3, p. 303). According to MELL this cannot be specifically separated from *aba-scortorum*. *mita* Brem. & Grey; neither is it a geographical race, but probably only an individual variation.

2. Genus: **Catocala** Schrk.

C. fraxini L. (Vol. 3, p. 304, p. 54 d; Suppl. Vol. 3, p. 212) — **yunnanensis** Mell is the largest race, fore- *yunnanensis*. wings an even deeper grey than in *moerens*, no brown tinge, the pale edge of the postdiscal dentate band much reduced. Hindwings purer black, the blue band with violet tone, the black submarginal band extending up to the white base of fringe. N. W. Yunnan (Likiang).

C. nupta L. (Vol. 3, p. 304, pl. 55 a; Suppl. Vol. 3, p. 213) — **japonica** Mell is smaller and has narrower *japonica*. wings than the other forms, submarginal and postdiscal undulate lines are whitish with black outer edges and generally contrast more strongly and are more distinct. The red of hindwings is rather duller, the black deeper, the central band with bold constrictions and angulated. Japan. — **likiangensis** Mell has distinctly dark grey *likiangensis*. forewings with reduced brown and obsolete transverse lines. Red of hindwings is brilliant, the black central band is narrow, boldly indented above centre and before its termination. N. W. Yunnan (Likiang) in one generation that extends from mid June to November.

C. szechuena Hmps. resembles the indian *concubina* Wkr., differing in the first instance by the browner *szechuena*. colouration. It also resembles *nupta*, which however is only narrowly white on underside on costa of hindwings, whilst in *szechuena* the entire costal half to the mediana and down to 3 is white. Forewings grey, richly admixed with brown and peppered with black. Markings as in *nupta*, the anterior double transverse line is interfilled with white at inner margin, the posterior line similarly double, brownish. Hindwings scarlet, the black central band expanding forming a spot below costa, then bending outwards and terminating at submedian fold. The black marginal band is angulated inwards on 2 and 1. A white apical spot at margin and small white spots at extremities of veins to 2. W. China (Ta-tsien-loo).

C. proxeneta Alph. (Vol. 3, p. 311, pl. 63 c) — **confluens** Mell has bolder brown forewings, especially the *confluens*. basal band. The black marginal band on hindwings is confluent, slightly constricted where the yellow pre-anal spot would be, the dark central band projecting slightly at this spot. Tientsin.

C. tapestrina Moore is an indian species from Simla, between *doerriesi* (Vol. 3, p. 312) and *conversa* *tapestrina*. (Vol. 3, p. 313, pl. 57 g) and is described in the indian Volume. The form — **armandi** Pouj. (= *butleri* Draes. *armandi*. nec Leech) (Vol. 3, p. 312) is palaearctic. The ♀ illustrated on pl. 56 d as *butleri*, is *armandi*, which according to MELL belongs to *tapestrina* despite the difference in the spines of the hind tibiae. As a further form, which like the preceding was also described as *Ephesia*, we have — **inconstans** Btlr. from Cashmir (Vol. 3, p. 316, *inconstans*. pl. 56 g), so that no great importance is to be attached to the spines of the hind tibiae and as ROTHSCHILD has maintained, the Genus *Ephesia* has no justification. MELL closes his remarks regarding this group of forms by saying: *armandi* is to be considered as a geographic form of a *Catocala*, which in the ♂ sex has completely lost the spines on hind tibiae, whilst in the ♀♀ 25% have them, which would appear to be a regressive characteristic. *armandi* occurs in Szechuan and N. W. Yunnan (Likiang).

C. conversa Esp. (Vol. 3, p. 313, pl. 57 g) — **antenigra** Schaw. has completely black forewings, practic- *antenigra*. ally no markings are visible. Hindwings are normal, yellow with deep black bands. Albarracin.

C. kuangtungensis Mell (Suppl. Vol. 3, p. 214) — **dejeani** Mell is smaller with more of an olive tone, *dejeani*. antemedian line markings less distinct, the pale cell spot below the stigmata is more apparent and smaller. Hindwings deeper yellow, inclined to orange. Szechuan (Siaoloo).

3. Genus: **Ephesia** Hbn.

longipalpalis. **E. longipalpalis** Mell differs strikingly from all other species by the exceptionally long 3rd segment of palpi. Otherwise it is very like the *tapestrina-armandi* group. Forewings pale brown, the antemedian transverse line with dense brown-black outer edge. Upper stigma dark. In the postmedian transverse line all the dentations project about equally. From the dentation on the submedian fold a strikingly pale oblique streak extends to the inner third of costa and from the 2 discal dentations, a similar wide oblique band extends parallel to the first to costa. A pale oblique streak almost parallel to margin behind the postmedian is very striking. The yellow of hindwings is a rich ochre and darker than in *armandi*. N. W. Yunnan (Likiang).

hönei. **E. hönei** Mell. Forewings deep brown with dark double antemedian, the outer of the two lines being three times as thick as the inner. The posterior transverse line is distinct, only moderately dentate, the lower of the two stigmata is somewhat paler. Hindwings orange-yellow with large apical spot; the black marginal band extends to anal angle, the inner one is like that of *musmi* Hmps. (Vol. 3, p. 317, pl. 63 d), indistinct in anal area and covered there with brown-grey hairs. N. W. Yunnan (Likiang).

beicki. *E. helena* Ev. (Vol. 3, p. 314, pl. 57 a) — **beicki** Mell has somewhat paler, duller colouration and central area with paler and more distinct bands, hindwings inclined to be orange. From Kansu and Kuku-Nor.

giuditta. **E. giuditta** Schaw. somewhat resembles *eutychea* Tr. (Vol. 3, p. 318, pl. 57 e). A small species with pure grey ground colour, the dark transverse bands fainter than in *eutychea*, the bold pointed dentation of the posterior transverse line is more obtuse and does not extend to the subterminal, also the projection that extends towards the base, above the inner margin, is absent. Hindwings paler yellow, the central band is narrower and not so deep in colour. Algeria (Hamam Rhira) captured in June.

yunnana. *E. largetaui* Obth. (Vol. 3, p. 319, pl. 57 d) — **yunnana** Mell (= ab. 1 Hmps.) has forewings in distal half completely brown, the proximal half and a few pale patches in marginal area are pale sandy brownish. Hindwings deeper yellow than in specimens from Szechuan. Generally somewhat larger than name type. N. W. Yunnan (Likiang). This is one of the commonest *Catocalidae* there.

infasciata. **E. infasciata** Mell is the only *Catocala* species out of about 150 that are known, that has no band in the chrome-yellow hindwings. Forewings earthen brown, anterior and posterior dark transverse bands are distinct, the former projects in 3 large dentations distally, it is widely expanded and dark in upper half and appears wide and single there, but elsewhere it is double. In the posterior band the 2 discal dentations are interfilled with brown. The upper stigma is pale brown, the lower one is only circumscribed with black-brown. Before the fringes there is a fine double line, the inner one dark, the outer one pale, between the veins, both expand forming spots. Length of forewings 23.7—26.9 mm. N. W. Yunnan (Likiang), end June and in July. Described from 6 ♂♂.

Subfamily: **Phytometrinae**.

3. Genus: **Syngrapha** Hbn.

arctica. *S. microgamma* Hbn. (Vol. 3, p. 346, pl. 64 a; Suppl. Vol. 3, p. 220) — **arctica** Rangn. are smaller and paler specimens with dull yellow-brown hindwings with brown edge. If the "gamma" mark is divided into two parts, it is named — **interrupta** Rangn. From N. Lapland.

magnifica. *S. interrogationis* L. (Vol. 3, p. 346, pl. 64 b; Suppl. Vol. 3, p. 220). In — **magnifica** Rangn. the silver "gamma" mark on forewings is unusually large and expansive and situate on a deep brown velvety ground. Lapland.

4. Genus: **Phytometra** Haw.

splendida. *P. festucae* L. (Vol. 3, p. 347, pl. 64 c; Suppl. Vol. 3, p. 221). — **splendida** Rangn. denotes exceptionally large specimens (up to 40 mm), richly marked with gold and an especially pale brilliant silvery spot also at apex. Hindwings very dark. Lapland (Lulea river).

nigroviolacea. *P. macrogamma* Ev. (Vol. 3, p. 352, pl. 65 b). — **nigroviolacea** Rangn. designates very dark specimens. In — **interrupta** Rangn. the "gamma" mark is intersected by a brown streak into two spots. Lapland.

Subfamily: **Noctuinae**.

21. Genus: **Autophila** Hbn.

asiatica. **A. asiatica** Stgr. (Vol. 3, p. 371, pl. 68 d) is by no means merely a form of *dilucida* Hbn., but a genuine species.

amseli. **A. amseli** Drt. (Suppl. Vol. 3, p. 226, pl. 24 c). BOURSIN has demonstrated that *amseli* is not a genuine species, but only the central asiatic form of *cerealis* Stgr. They are pale specimens with few markings, which

can outwardly only with difficulty be separated from the preceding *asiatica*. The differences alleged to have been found by AMSEL in the genitalia were only due to the method of preparation and do in fact not exist. The types are in the STAUDINGER collection.

57. Genus: **Anumeta** Wkr.

A. quatuor Berio is close to *surcoufi* Dumont (Suppl. Vol. 3, p. 229); forewings reddish brown to the *quatuor*. brown postmedian, beyond this whitish, only somewhat tinged with brownish at apex. A large jet-black spot in centre of margin and posteriorly a faintly dentate black marginal line. Fringes brown. Hindwings similarly marked, only slightly more brownish in colouration. Wing expanse: 33 mm. Fezzan (Ubari) in October. — **lineata** Berio has additionally an anterior and central transverse line on forewings. *lineata*.

58. Genus: **Syneda** Gn. (instead of *Aleucanitis* Warr.).

S. catocalis Stgr. (Vol. 3, p. 300, pl. 70 h) — **reducta** Fdz. is an insignificant form in which the central *reducta*. band of forewings does not conjoin with the subterminal. The latter terminates above the middle. On hindwings the black is reduced and the yellow paler. Korla.

100. Genus: **Herminia** Latr.

H. proxima Chr. (24 k) was overlooked. It is very like *crinalis* Tr. (Vol. 3, p. 421, pl. 72 e, f) but some- *proxima*. what smaller, colouration a purer ashen grey, dusted with black-brown, sometimes somewhat more yellowish. Both inner transverse lines like in *crinalis*, the outer one more widely whitish and decidedly more undulate, with wide black inner edge. Central spot heavily black. Central shade, marginal line and hindwings as in *crinalis*. Taurus; Armenia.

H. nigricaria Osth. (24 k). Forewings monotonous blackish grey with glossy yellowish sheen. Both trans- *nigricaria*. verse lines bold and wide, blackish; the inner one curved outwards and undulate, the outer one fairly straight, only bending slightly outwards in the lower half and very faintly dentate. In place of reniform stigma a faint lunular mark. Subterminal line is almost straight and parallel to margin, pale, with darker inner edge. A fine marginal black line before the fringes. Hindwings paler towards the base, with 2 transverse lines, the outer one angulated above anal angle. Antennae of ♂ bipectinated, slightly thickened below centre of shaft. Wing expanse: 25—27 mm. Taurus (Maras, Düldül-Dagh) in August.

116. Genus: **Rhynchodontodes** Warr.

R. schwingenschussi Wgnr. This species, that was described in 1913 was unfortunately omitted. It is *schwingen-* *schussi*. a striking pale species, light grey with a wide white streak from apex to reniform stigma into which it merges. The latter has a brown inner edge. Below the white streak the marginal area is a darker iron-grey, the inner marginal half of forewings is dusted with whitish. Between mediana and inner marginal nervure, there is a vertical white transverse line that has a dark inner edge. Anteriorly and posteriorly in basal and marginal areas there are parallel darker obsolescent transverse shades. Hindwings unicoloured brownish grey. Wing expanse: 23 mm. Ili territory (Central Asia). WAGNER places the species, which is described from a single ♀ between *antiqualis* Hbn. and *ravalis* H.-S. (Vol. 3, p. 430).

118. Genus: **Hypena** Schrk.

H. tamsi Filipj. is compared with *proboscidalis deleta* Stgr. Forewings brownish grey, with violet sheen *tamsi*. and faint anterior transverse line, that is curved towards the base and is bolder and less oblique than in *deleta*. Subterminal line like in *deleta*, beyond it a shade that is particularly noticeable in centre of wing. Outer half of fringes paler. Hindwings paler grey-brown with dark marginal line, fringes as on forewings. Wing expanse: 28 mm. From Sutshan and Japan (Kyushyu), those from the latter locality being somewhat larger and with more apparent violet sheen. In August.

119. Genus: **Hypenodes** Guen.

H. orientalis Stgr. (Vol. 3, p. 438). This is a genuine species and not a form of *kalchbergi*. A small form *orientalis*. from Crete — *nesiota* Rbl. is synonymous.

II. Addenda.

A further revision is necessary owing to the number of new descriptions, corrections etc and the possibility of giving some additional illustrations.

19. Genus: **Bryophila** Fr.

- medioochracea*. *B. ravula* Hbn. (Vol. 3, p. 20; Suppl. Vol. 3, p. 17). — **medioochracea** Byt.-S. (24 k) corresponds to the form *grisescens* Obth. in ground colour, but the central area between the two transverse lines is rusty red in contrast to *ravulana*, in which the antemedian area is brown. Asia Minor (Anatolia); Beirut; Sardinia.
- solimana*. *B. galathea* Mill. (Vol. 3, p. 20, pl. 4 d). — **solimana** f. n. (24 k) has more pointed wings with more oblique margins. The white antemedian is wider and consists of 2 deeply curved archs and there is a rusty red streak in place of a claviform stigma at the point of contact. All other markings are fairly similar to those of *galathea*, only the yellowish white ground colour seems more prominent and in consequence slightly paler than in freshly emerged specimens of *galathea*. I am meanwhile classifying this form here and leave it to be decided later, whether it is a genuine species. Hitherto only a limited number of specimens have been obtained at Tacht-i-Suleiman (N. Persia, Elburz).
- atlantis*. **B. atlantis** Schwing. (24 k) is very close to *galathea*, but is more robustly built and has wider wing contour. Ground colour monotonous dark grey-green, so that the delicate markings appear rather confused. They are similarly arranged to *galathea* and also like the much smaller *bilineata* Rothschild. Hindwings whitish grey with grey discal spot, grey outer band and a varying wide grey margin. Fringes whitish. Morocco (Tachdirt), between 2700 and 3100 m. In July.
- squamosa*. **B. squamosa** Schwing. resembles *muralis* Forst. but is smaller and wings are more rounded. Forewings yellow-grey in ♂ with reddish hue, inclined to rosy red in ♀. Arrangement of markings similar to that of *muralis*, the central area from stigmata to inner margin black, only between the stigmata a round yellow respectively red spot remains. Hindwings in ♂ whitish, scaled with grey and with distinct discal spot and faint transverse line; in ♀ hindwings are almost black. Wing expanse: 23—24 mm. Morocco (Jjoukak). End of June.

20. Genus: **Euxoa** Hb.

- anarmodia*. **E. anarmodia** Stgr. (Vol. 3, p. 26; Suppl. Vol. 3, p. 51). According to BOURSIN this is a genuine *Euxoa* and not an *Agrotis*. It should be classified next to *capsensis* Chrét. (Suppl. Vol. 3, p. 24). As a synonym: *albi-orbis* Hamps. 1919 nec 1909.
- temera*. **E. temera** Hb. (Vol. 3, p. 27 as *obelisca*; Suppl. Vol. 3, p. 24). As a synonym to this species: *hemispherica* Hamps. (Vol. 3, p. 26, pl. 12 a; Suppl. Vol. 3, p. 29).
- ambrosiana*. *E. suffusa* Fdz. (Suppl. Vol. 3, p. 240). — **ambrosiana** Bours. The locality Anatolia (Akshehir) should be deleted, as this is only a pale specimen of *hastifera* Donz. (Vol. 3, p. 27, pl. 5 h; Suppl. Vol. 3, p. 24).
- scurrilis*. **E. scurrielis** sp. n. (26 d) should be classified next to *fraudulenta* Cti. (Suppl. Vol. 3, p. 31, pl. 4 c). Head and thorax covered with coarse black and yellowish white scales. Forewings coarsely peppered with black on yellowish white ground. Subbasal, anterior and posterior transverse lines double, densely black, crenulate and interfilled with pure whitish yellow ground colour. Stigmata can only be discerned with difficulty in the mottled ground, between them a black central shade extends to inner margin. Central area partially with somewhat bluish tone. In subterminal area there are indications of irregular black cuneiform marks forming a subterminal line. Beyond the yellow-white marginal line, fringes are checked with blackish. Hindwings pale brownish grey with somewhat darker veins and whitish fringes. Mr. BOURSIN has examined the genitalia. Described from a freshly emerged ♂ captured by PFEIFFER at end of July on the Kendevan Pass (Persia, Elburz). Type in the collection of DRAUDT.
- kotzschii*. **E. kotzschii** sp. n. (24 i) should be classified about between *decora* Schiff, and *birivia* Schiff. (Suppl. Vol. 3, p. 31). The ♂ antennae have long ciliate serrations. Head and thorax with grey and black hairs. Forewings uniformly peppered with black on whitish grey ground. Subbasally 2 black costal dots and a larger one conjoined by an indistinct basal streak below mediana. Both transverse lines are double, arising from bold black dots on costa; the posterior line outlining the wide blackish central shade. All 3 stigmata large and of the usual shapes, orbicular stigma generally elliptical at top. Subterminal line pale, irregularly dentate with dark grey inner edge. There is a pale fringe base line posterior to the heavy black marginal streaks. The pale grey fringes are intersected by 2 dark lines. Hindwings whitish faintly coloured with grey at margin and on veins and with a fine interrupted marginal line. A large number of pairs were captured by H. KOTZSCH in June on a high alpine table land, 2800—3000 m altitude at Badachshan (Sebak valley) and named in his honour. Types are in the collection of KOTZSCH, cotypes in the collection of DRAUDT.

21. Genus: **Agrotis** O.

A. graslini Rbr. (Vol. 3, p. 36, pl. 7 i; Suppl. Vol. 3, p. 43). We are now able to give an illustration of the form — **joannisi** Gl. et le P. (26 e). *joannisi.*

A. flavina H.-Schäff. (Vol. 3, p. 41, pl. 12 c; Suppl. Vol. 3, p. 52). As a synonym of the form — **brunneo-** *brunneo-*
picta Cti. we have to mention — *xanthosemata* Hmps. (*Epipsilia*) which was described from Elisabethpol. *picta.*

Subgenus: **Ogygia** Hbn.

O. wiltshirei Bours. (Suppl. Vol. 3, p. 245). Through the courtesy of Mr. CH. BOURSIN, we are now able *wiltshirei.*
to give an illustration (23 k).

O. elongata Trti. The author classifies this in his Genus: *Stenosoma* next to *synesia* Trti., which we had *elongata.*
considered as synonymous with *mansoura* Obth. (Suppl. Vol. 3, p. 57). TURATI still maintains this is a genuine species and alleges that it differs by the bluish grey colouration as well as by the longer forewings, that are more pointed at apex; *elongata* approaches *agrotina* Roths. (Suppl. Vol. 3, p. 56, pl. 6 h) in appearance but has a more elongated and narrower wing contour: the ground colour is ashen grey, less blackish than in *agrotina*; the upper stigmata have pale surrounds, the narrow claviform stigma is distinct. Marginal area is somewhat less pale than in *agrotina*, but much paler than in *mansoura* respectively *synesia*. Apex is subdivided by a dark oblique streak. Hindwings are whitish with brownish veins and discal spot. Wing expanse: 36 mm. Cyrenaica (Seleidima and Zuetima) in September.

21. Genus: **Rhyacia** Hbn.

Rh. pseudosimulans Kozh. (Suppl. Vol. 3, p. 70, pl. 10 a). As synonymous with this species must be *pseudosimu-*
added *Epipsilia arenacea* Hmps. nec *arenacea* Kozh. (1923) described from Quetta. *lans.*

Rh. rafidain Bours. (Suppl. Vol. 3, p. 248) is now illustrated (23 k). *rafidain.*

Rh. insignata Led. (Vol. 3, p. 54, pl. 13 b; Suppl. Vol. 3, p. 64 and 248). — *fuliginosa* Drt. is synonymous
with — **leuconeura** Hmps., which was described first; possibly this is a genuine species. *leuconeura.*

Rh. peterseni Krul. (= *eversmanni* Pet.) (Suppl. Vol. 3, p. 248) is now illustrated (26 e) from a specimen *peterseni.*
kindly lent by Dr. HÖRHAMMER.

Rh. iobaphes Bours. (Suppl. Vol. 3, p. 251) is illustrated (23 k) by the courtesy of CH. BOURSIN. *iobaphes.*

Rh. baja F. (Vol. 3, p. 44, pl. 9 k; Suppl. Vol. 3, p. 77). As synonymous with the form — **nisseni** Roths. *nisseni.*
we must add — *durandi* Luc.

Rh. depuncta L. (Vol. 3, p. 44, pl. 9 i; Suppl. Vol. 3, p. 251) — **pontica** Stgr. according to BOURSIN, is *pontica.*
a genuine species and the form — *consenescens* Stgr. belongs to the latter and has no connection with *depuncta*;
consenescens occurs in typical form in Spain (Béjar).

Rh. pulverea Hmps. (Suppl. Vol. 3, p. 80) belongs to *xanthographa* Schiff. according to information *pulverea.*
kindly supplied by BOURSIN.

4. Subfamily: **Hadeninae**.4. Genus: **Scotogramma** Smith.

S. raselaini Dumont (Suppl. Vol. 3, p. 98). According to BOURSIN this is a genuine species and not a *raselaini.*
form of *salicorniae* (Suppl. Vol. 3, p. 97) and the latter should probably be classified with *sodae* Rmbr.; *raselaini*
can now be illustrated (24 k).

S. epiphleps Trti. is provisionally placed in this Genus by its author and it somewhat resembles *Polia epiphleps.*
satanella Alph. (Vol. 3, p. 73, pl. 17 c). Forewings grey, somewhat paler subcostally, with a wide whitish sub-
terminal area. Both transverse lines are crenulate, black sagittate marks before subterminal line. The small
round orbicular stigma is ochreous yellow with darker centre, reniform is unicoloured with a faint yellowish dot
outwardly. Marginal area monotonous black-brown, with black lunular streaks on margin with touches of
ochreous brownish. The grey fringes are checked with ochre. Hindwings grey-white with blackish cuneiform
marks on margin. Wing expanse: 36 mm. From 1 ♀ from Cyrenaica (Seleidima) in November.

21. Genus: **Cardepi** Hmps.

C. taylori Roths. resembles *irrisor* Ersch. (Vol. 3, p. 83, pl. 21 b; Suppl. Vol. 3, p. 111) but is larger *taylori.*
and darker. Head, thorax and forewings are dark grey-brown (not "pale mouse-grey") peppered with blue-

grey and cinnamon brown. The orbicular stigma is much larger, reniform more sharply outlined and with black core in lower half, claviform stigma is very large and intensively black-brown. Subterminal line is more deeply dentate, fringes are brown with darker brown checks. Hindwings darker, outwardly sooty black with white fringes. Wing expanse: 41 mm. Mesopotamia (Amara) in October.

Subfamily: **Cucullianae**.

3. Genus: **Pseudocopicucullia** Dumont.

melano-
glossa. **P. melanoglossa** Berio. Body and forewings yellowish white, collar with black intersecting line. Forewings with fine black basal streak, no indications of transverse lines, all veins finely black. A few ochreous interneural streaks subapically and a similar lunular arch in place of the posterior transverse line before the anal angle. Inwardly of same towards the base a few speckles. Hindwings transparent pure white with yellowish veins and marginal line. Wing expanse: 40 mm. Fezzan (Ubari) in October. The author had created for this species, the separate Genus: *Pseudonycterophaeta*.

32a. Genus: **Thecamichtis** gen. n.

To be placed between *Thecophora* Led. and *Eumichtis* Hbn. Proboscis fully developed, the upturned palpi are hairy underneath and with somewhat projecting terminal segment. Frons smooth with high frontal tuft. Eyes large, round, boldly ciliate. ♂ antennae strongly serrate with fascicles of cilia. Thorax covered with hairs and scales, tufts on prothorax and metathorax. Abdomen with fairly tall dorsal tufts. Neuration of forewings normal, on hindwings in ♂ the subcostalis in the upper section of cell has a flat S shape, at first convex, bending then concavely upwards and downwards to the long stalk of 6 and 7, forming at the point of division a sort of accessory cell with an oblique fold coming from 8. This gives the impression of a deep oval cavity on the upper side of hindwings which is filled with, long hairy scent scales. In the ♀ the neuration of hindwings is normal. Margin of forewings is undulate. Only 1 species:

meissneri. **Th. meissneri** sp. n. somewhat resembles outwardly *Trichoridia canosparsa* Hmps. (Vol. 11, p. 113) described from Sikkin, but differs considerably anatomically. Head and thorax are black, interspersed with yellow-white. Forewings black, densely peppered with yellow-white, on costa alternately marked with black and white. Subbasal is only indicated by a few black appressions of scales. The anterior transverse line is double, the lines are widely separated and interfilled with black, so that a broad black antemedian band is created. The upper stigmata are somewhat quadrate but without outline and pale yellowish white in the mottled ground. They have 3 or 4 black dots in the angles, and are slightly more deeply shaded with black before and behind the reniform stigma. The posterior transverse line is crenulate; subterminal black streaks that in the submedian area contain 2 yellow-white streaks. Fringes black with faint white checks. Hindwings brownish, widely dusky at margin and with delicate yellow-white fringe base line. Obtained in large quantities at Likiang (N. Yunnan) and in single specimens at Tai-shan (Shantung) in September. Types in the collection of HOENE, Reichsmuseum Alexander König in Bonn; cotypes in the collection of DRAUDT. In all probability the illustration in Vol. 11, pl. 14 g as "*canosparsa* ♀" represents this species, whilst the ♂ is a copy of HAMPSON's illustration, which was described only from genuine *canosparsa* ♂♂. This interesting new discovery is named in honour of Mr. PAUL MEISSNER, Shanghai, who is a director of the well known german firm of Otto Wolff, Cologne and who has helped promote the expeditions of HOENE in a most generous manner.

43. Genus: **Antitype** Hbn.

glaisi. **A. rosea** Rothsch. (Suppl. Vol. 3, p. 142) — **glaisi** D. Luc. is not simply a synonym, it is a pale grey and not a brownish rose form.

pentheri. **A. pentheri** Rbl. (Suppl. Vol. 3, p. 144) proves to be a synonym to *Crym. platinea-montana* H.-S. (Suppl. Vol. 3, p. 259) and must therefore be deleted.

47. Genus: **Bryomima** Stgr.

grisea. **B. johanna** Stgr. (Vol. 3, p. 139, pl. 34 d; Suppl. Vol. 3, p. 258). — **grisea** D. Luc. is not a simple synonym, but the more monotonously coloured north african race with less distinct markings, but with bolder discal spots.

62. Genus: **Amathes** Hbn.

hypotaenia. **A. hypotaenia** Byt.-S. (23 k). Forewings dark brown, the double transverse lines widely suffused with blackish. There is a very distinct dark brown subapical spot, that is continued in a row of fine black interneural dots. A delicate pale fringe base line behind blackish marginal dots. Between the two transverse lines there is

an oblique central shade. Orbicular stigma is elongate and oblique, the large reniform is filled with grey, both stigmata with fine reddish surrounds. Hindwings grey with large discal spot, postmedian and pale fringes. Beirut (Syria). — **wiltshirei** Byt.-S. is a dark black-brown form that looks about like *Conistra ligula-polita* Hbn., *wiltshirei*, but the marginal area remains a contrasting pale leathery brown. Lebanon (Arayah) in December.

Subfamily: **Zenobiinae**.

9. Genus: **Parastichtis** Hbn.

P. timida Stgr. (Suppl. Vol. 3, p. 158) was unfortunately omitted from plate 19 h and the illustration *timida* is now being given here (23 c).

24a. Genus: **Lucasidia** Bours.

Proboscis developed, palpi scaled and with short terminal segment. Frons with granulated round convex arch, that has a projecting ridge in centre that ends at top in an obtuse point, below in a corneous plate. ♂ antennae serrate, ciliate. Thorax covered with scales and hairs, metathorax with tuft. Abdomen without tufts. Neuration of forewings normal; hindwings show vein 5 relatively thick, somewhat below the disco-cellular nerve, 6 and 7 with short stalk. Only 1 species:

L. phenax Bours. (23 k). Head and thorax yellowish white, with faint reddish hue, abdomen grey-brown. *phenax*. Forewings rose-yellow, admixed with bluish. The anterior transverse line consists of 3 separated sectors. Claviform stigma short, quadrate, close below orbicular stigma. Central shade indistinct. The round orbicular stigma has a somewhat darker centre, reniform is indicated by a darker patch. The fine indistinct posterior transverse line is crenulate. Postmedian and subterminal areas are inclined to bluish grey, somewhat brownish before the apex. Subterminal line is absent, fringes are rose-yellowish. Hindwings brownish with darker marginal band and postmedian indicated. The ♀ is darker, somewhat of a bluish leaden grey, but varying in the depth of the leaden grey colouration. Hindwings completely brown. Wing expanse: ♂ 34, ♀ 36 mm. S. W. Morocco.

26a. Genus: **Usbeca** Pglr.

U. cornuta Pglr. (Suppl. Vol. 3, p. 166). The form — **kulmburgi** Rbl. was erroneously not illustrated on *kulmburgi*. pl. 20 f, but we are now giving an illustration (23 c).

65. Genus: **Praestilbia** Stgr.

P. armeniaca Stgr. (Vol. 3, p. 205, pl. 48 c; Suppl. Vol. 3, p. 174). In — **designata** Byt.-S. all traces of *designata*. black markings are absent from forewings, the dark inner edge of postmedian is also extinct, the only markings are the delicate surrounds of the stigmata and the two transverse lines. Lebanon (Aley) in October.

Addenda to the Group of Forms of the Genus: **Athetis** Hb.

The excellent revision of this very difficult group, which has been published by BOURSIN *) after years of painstaking research and after examination of all the available types, is deserving of careful attention. It is greatly to be appreciated that clarity and order have been created in these species after the chaos that, with the exception of 2 or 3 groups, has hitherto prevailed. Thanks to Mr. BOURSIN, it has been possible to illustrate the types of the species almost without exception. The following is the result:

66. Genus: **Hypostilbia** Hmps.

This Genus has to be entirely withdrawn, as

H. megastigma Pglr. (Vol. 3, p. 205, pl. 48 c; Suppl. Vol. 3, p. 174) proves to be synonymous with *megastigma*. *Nonagria distracta* Ev. (Vol. 3, p. 216, pl. 45 i; Suppl. Vol. 3, p. 174). Further synonyms are: *Athetis cinerea* Alph. (Vol. 3, p. 216, pl. 48 d; Suppl. Vol. 3, p. 182) and also *Arenostola mollicella* Pglr. (Vol. 3, p. 235). The species is a genuine *Nonagria* to be classified next to *maritima* Tausch. (Vol. 3, p. 238, pl. 48 e; Suppl. Vol. 3, p. 194).

H. correpta Pglr. (Vol. 3, p. 205, pl. 42 f; Suppl. Vol. 3, p. 174) on the other hand is a genuine *Proxenus correpta*. that comes next to *lepigone* Mschlr. (Vol. 3, p. 216), just as does *bang-haasi* Wgnr. (Suppl. Vol. 3, p. 174).

*) Compare BOURSIN, Morpholog. and systematic Study of the Genus *Athetis* Hbn. (Caradrina Auct.), Entomolog. Rundschau, 54 volume, No. 29, p. 364 etc.

67. Genus: **Amphidrina** Stgr.

paupera. *A. nitida* Pglr. (Suppl. Vol. 3, p. 174) must be considered synonymous with **Athetis paupera** Christ. (Vol. 3, p. 213, pl. 45 f; Suppl. Vol. 3, p. 180, pl. 26 l), which however is neither an *Amphidrina* nor an *Athetis*. BOURSIN creates for the species the

67a. Genus: **Stenodrina**

which is characterised by the thin transparent frons, slender palpi, scaled thorax and narrow sleek abdomen. To this new Genus has to be added:

aeschista. **St. aeschista** Bours. (26 l). ♂ antennae with short fascicles of cilia. Forewings impure grey-brown. Anterior transverse line barely indicated. Orbicular and claviform stigmata and central shade are absent. There is a very prominent black-brown dot in the lower half of the reniform stigma. The posterior transverse line is dark, subterminal line is very indistinct in the dusky marginal area. On margin there are brown-black inter-neural streaks. Fringes unicoloured. Hindwings grey-brown, paler towards the base with impure whitish fringes. Amasia, Kurdistan.

67b. Genus: **Hoplodrina** Bours.

This new Genus is very close to *Amphidrina* Stgr., differing by the vestiture of the thorax, that consists of scales and hairs without tuft on metathorax and by the entirely different genitalia.

Type: *H. alsines* Brahm.

H. alsines Brahm (= *alsinides* Costni.) (Vol. 3, p. 208, pl. 42 h; Suppl. Vol. 3, p. 175).

H. blanda Schiff. (Vol. 3, p. 208, pl. 42 h; Suppl. Vol. 3, p. 175).

H. levis Stgr. (Vol. 3, p. 208, pl. 42 h; Suppl. Vol. 3, p. 175).

H. pfeifferi Bours. (Suppl. Vol. 3, p. 175).

H. straminea Zny. (Suppl. Vol. 3, p. 175).

H. ambigua Schiff. (Vol. 3, p. 209, pl. 42 i; Suppl. Vol. 3, p. 176).

H. superstes Tr. (Vol. 3, p. 209, pl. 42 k).

H. atlantis Zny. (Suppl. Vol. 3, p. 176).

H. respersa Schiff. (Vol. 3, p. 209, pl. 42 k).

H. placata Leech (Vol. 3, p. 208, pl. 42 g).

euryptera. **H. euryptera** Bours. (26 l). Forewings wide, uniformly brown with faint reddish sheen and indistinct anterior transverse line. The large orbicular stigma is delicately outlined in yellowish, as is the large reniform stigma. A wide central shade is barely visible. The posterior transverse line is indicated by dark dots on the veins. Subterminal line is straight, fine and yellowish, as is the marginal line, before which there are minute blackbrown crescents. Hindwings uniformly brown. Wing expanse: 36 mm. Szechuan (Giufu-shan) at an altitude of 1800 m, in August.

H. conspicua Leech (Vol. 3, p. 208, pl. 48 a; Suppl. Vol. 3, p. 175).

71. Genus: **Athetis** Hbn.

Elaphria. As generic name for this group, the name: **Elaphria** Hbn. must be introduced. The explicit reasons for this cannot be given here and we refer to the original work. In order to group the species of this difficult family according to phylogenetic standpoints, BOURSIN has subdivided it into several subgenera, based on the morphology of the ♂ genital organs. In regard to the interesting details that have resulted from this, we must again refer to the original work.

1. Subgenus: **Elaphria** Hbn.

Type: *E. morpheus* Hfngl.

morpheus. **E. morpheus** Hfngl. (Vol. 3, p. 213, pl. 45 f; Suppl. Vol. 3, p. 180) is the name type according to the rules of nomenclature and at the same time the sole representative of this subgenus. Genitalia differ somewhat *dresnayi*. from the other groups. — **dresnayi** Luc. denotes very dark, almost black specimens.

2. Subgenus: **Hymenodrina** Bours.

Type: *E. terrea* Frr.

In these species the valves have a cuticular membrane at the extremity. The following species belong here:

E. cinerascens Tengstr. (Suppl. Vol. 3, p. 178).

E. albina Ev. (= *tenera* B.-H.) (Vol. 3, p. 212, pl. 45 d; Suppl. Vol. 3, p. 179).

E. grisea Ev. (Suppl. Vol. 3, p. 177).

E. melancholica Drt. (Suppl. Vol. 3, p. 177, pl. 22 e).

E. parvaspersa Bours. (26 l). ♂ antennae with short fascicles of cilia. Forewings dark ashen grey with *parvaspersa*. very indistinct markings, only the reniform stigma is dark and clear, while the subterminal line is visible. Hindwings in ♂ impure whitish, dusky shaded in marginal half, with distinct discal spot. In ♀ hindwings are somewhat more brownish. Wing expanse: 23—25 mm. Rayat, Iraq (East Mossul), in September.

E. terrea Frr. (Vol. 3, p. 212, pl. 45 d, e; Suppl. Vol. 3, p. 179).

E. albersi Warn. (26 k) comes next to *terrea*. Forewings yellowish brown, dusted with dark grey. Trans- *albersi*. verse lines dark grey and indistinct, orbicular stigma dark grey with pale outline; the large reniform is also dark grey and more or less distinct with paler outline, generally with whitish cuneiform spots outwardly. In marginal area a paler yellowish undulate line, before which are brown shades that often diffuse into cuneiform patches. Veins generally darker in marginal area. Hindwings whitish, grey in ♀ with dusky marginal half. — **clarior** Warn. denotes paler specimens. Central Asia, Djarkent, Ili, Thian-shan, Urumchi, Naryn. *clarior*.

E. proxima Rmbr. (= *infusca* Rmbr., *kadenii* Oberth. nec Frr.) (Vol. 3, p. 212; Suppl. Vol. 3, p. 179). *proxima*. BOURSIN has ascertained that *kadenii* Frr. is a genuine species and that inspite of its outward surprising similarity belongs in another group. The differences in the characteristics are: in *proxima* the black marginal line of hindwings is not interrupted, in *kadenii* it consists of interneural streaks; reniform stigma in *proxima* is paler and less striking, whilst in *kadenii* it is dark and sharply outlined; *proxima* has more delicate transverse lines and an almost straight fine subterminal line, in *kadenii* the latter forms a dentation on vein 5 towards the base and has bolder sagittate marks in front. Spain; Portugal; France (Collioure, E. Pyrenees). — **rufo-** *rufostigmata*. **stigmata** Rothsch. is the northern african form with more reddish reniform stigma. We are again illustrating the typical species (25 l).

E. warneckei Bours. (26 k). Forewings brownish grey. The distinct anterior transverse line forms a *warneckei*. dentation in place of the absent claviform stigma. Orbicular and reniform stigmata are somewhat darker than the ground. Posterior transverse line is barely indicated, subterminal line is very distinct with 4 black-brown sagittate marks anteriorly between veins 3 and 6. Subterminal area faintly brownish. Hindwings impure white with dark margin and distinct discal spot. Wing expanse: 29 mm. Central Asia (Ala Tau; Issyk-kul; Ili, from around Djarkent; Naryn; Thian-shan).

E. sogdiana Bours. (26 k). ♂ antennae with short fascicles of cilia. Forewings brownish grey, all mark- *sogdiana*. ings indistinct with the exception of the central shade and the distinctly visible reniform stigma. Subterminal line indicated by darker shading between 2 and 7. Subterminal area somewhat brownish. Hindwings impure grey-brown. Wing expanse: 28 mm. Kara-Tjube, S. E. of Samarkand (Turkestan) in September.

E. surchica Bours. (26 k). ♂ antennae with short fascicles of cilia. Forewings almost devoid of mark- *surchica*. ings, grey, only the two transverse lines are distinct, the posterior line commences at a heavy black dot above the reniform stigma. The latter only contrasts faintly from ground colour, all the other stigmata are absent. Central shade is very indistinct. Postmedian area slightly darker towards distinct subterminal line. Marginal area beyond slightly brownish. Hindwings whitish with dark marginal band, darker in ♀. Wing expanse: 25—26 mm. Kurdistan (Rowanduz; Shekh Adi) in September to November.

E. rjabovi Bours. (26 k). Forewings brown with bold markings, both transverse lines distinct, also a *rjabovi*. heavy central shade. Claviform stigma is absent. Orbicular and reniform stigmata present, darker than ground. Postmedian area heavily brownish. Hindwings whitish, dusky brown at margin. Wing expanse: 28 mm. Armenia (Migry on Araxes); from around Van.

E. soudanensis Hmps. (26 i) outwardly closely resembles *eremocosma*, but according to genitalia it is *soudanensis*. a *Hymenodrina*; it is somewhat smaller than the species mentioned, duller grey-yellow, otherwise very similarly marked, also the black central shade is similarly formed, but the marginal area is more widely blackened and has traces of a pale subterminal line therein. Hindwings purer white with narrower and more clearly defined blackish marginal band. Described from Port Sudan. I have specimens from Arabia (Djeddah) kindly sent me by BOURSIN and it probably occurs also in the palaearctic districts of Egypt.

E. syriaca Stgr. (Vol. 3, p. 213; Suppl. Vol. 3, p. 180).

E. aspersa Rbr. (= *culoti* Trti., *predotae* Schaw.) (Vol. 3, p. 213, pl. 45 g; Suppl. 3, p. 181).

E. wiltshirei Bours. (26 k). ♂ antennae with short fascicles of cilia. Forewings yellowish brown, all *wiltshirei*. markings indistinct, claviform and orbicular stigmata are absent, only reniform stigma discernible. Postmedian and subterminal areas are embraced by a wide and distinct dark band. Hindwings impure yellowish white, dusky at margin. Wing expanse: 28 mm. Iraq (Rowanduz), East Mossul, in September.

E. germainii Dup. (= *laciniosa* Donz. [sec. specimen typ.] *bolivari* Fdz., *jacobsi* auct. nec Rothsch.) (Vol. 3, p. 212, pl. 45 e; Suppl. Vol. 3, p. 179).

kadenii. **E. kadenii** *Frr.* (Vol. 3, p. 212, pl. 45 e) is a genuine species according to BOURSIN, which differs from *proxima* by the differently shaped genitalia. This species seems to be indigenous to chalky districts and is absent from localities, where *proxima* is found, it does not occur in Spain, Portugal and N. Africa. To give a comparison with *proxima*, we are illustrating the species (25 k).

ingrata. **E. ingrata** *Stgr.* (= *infusca* *Const.* ♂, nec ♀, nec *Rmbr.*) (Vol. 3, p. 212, pl. 48 c; Suppl. Vol. 3, p. 178). This species is now also recorded as occurring near Marseilles (Plan d'Aups), where it was captured on 9 September. It is also found in Spain (Burgos and Saragossa).

E. oberthüri *Rothsch.* (Suppl. Vol. 3, p. 181).

3. Subgenus: **Paradrina** *Bours.*

In these the valves separate into 2 extending lobes, of which the lower one is occasionally rudimentary.

Type: *E. selini* *B.*

E. selini *B.* (= *telekii* *Diosz.*) (Vol. 3, p. 210; Suppl. Vol. 3, p. 176).

fuscicornis. **E. fuscicornis** *Rmbr.* (= *variabilis* *Bell.*) (Vol. 3, p. 212, pl. 45 e; Suppl. Vol. 3, p. 179) is a genuine species *), that occurs in April, May and again in September, October exclusively in Corsica and Sardinia and at a period in the year, when scarcely any collecting has been done and therefore it is rare in collections. It closely resembles *kadenii*, but is smaller, paler and with black antennae (in *kadenii* they are brownish), an almost indistinguishable reniform stigma and finally by still purer white hindwings. It is widely separated from *kadenii* and *proxima* by the shape of the valves and armature of penis. The larva feeds on *Scrophularia ramosissima*. — *rufostigmata* *Rothsch.* is a race of *proxima*, as is mentioned above and its relationship to *sachalinensis* *Mats.* is very doubtful.

amseli. **E. amseli** *Bours.* (25 l). Forewings brownish grey, markings are just like those of *clavipalpis*. Subbasal is indicated on costa by a black dot. Transverse lines distinct, the anterior one double, central shade only faintly indicated. Orbicular stigma is a brown dot, reniform stigma is normal, brown with reddish admixture. In front of the distinct subterminal line, there are red-brown sagittate streaks between 5 and costa. Black dots on veins at margin. Hindwings white, duskier in ♀. Wing expanse: 29—30 mm. Palestine (Jericho; Genezareth), Lebanon.

zobeidah. **E. zobeidah** *Bours.* (26 l). Forewings smoky grey with indistinct subbasal and distinct anterior transverse line. Orbicular stigma indicated by a small dark dot, reniform with brownish core, darker below, distinct. Central shade and posterior transverse line distinct, the area behind the latter shaded. Subterminal line consists of paler yellowish spots in the dusky marginal area. Hindwings whitish, faintly shaded at outer margin. Wing expanse: 24—28 mm. Iraq (Bagdad, Mossul); a paler specimen from around Teheran.

E. flavirena *Gn.* (Vol. 3, p. 210, pl. 45 b; Suppl. Vol. 3, p. 177).

E. muricolor *Bours.* (Suppl. Vol. 3, p. 177).

E. persinilis *Rothsch.* (Suppl. Vol. 3, p. 178).

E. rebeli *Stgr.* (Vol. 3, p. 210, pl. 45 a).

E. mairei *Drt.* (Suppl. Vol. 3, p. 177).

E. himalayica *Koll.* (Vol. 3, p. 211, pl. 45 b, c).

E. chinensis *Leech* (Vol. 3, p. 211, pl. 45 c).

heptarchia. **E. heptarchia** *Bours.* (26 l). Forewings grey, admixed with brown, subbasal and anterior transverse lines faintly distinguishable. Claviform stigma absent. Orbicular stigma of usual shape but barely discernible, reniform is large and well developed with red-brown shade outwardly. The posterior transverse line is scarcely indicated, the postmedian area becomes more intensely brown outwardly. A paler subterminal line in the darker subterminal area. Hindwings impure grey-brown, paler in disc with distinct discal spot. Wing expanse: 32 mm. Yunnan (Tali). Paler specimens occur commonly at Likang (N. Yunnan) and are in the HOENE collection.

E. hispanica *Mab.* (Vol. 3, p. 211, pl. 48 a; Suppl. Vol. 3, p. 178).

E. hypostigma *Bours.* (Suppl. 3, p. 176).

boursini. **E. boursini** *Wgnr.* (25 l). Forewings suffused in varying extent with deep sepia and peppered with black on pale reddish brown ground. Only the costal area and reniform stigma remain pale, the latter filled with black with pale core. A wide blackish brown shaded band with paler centre in front of the dentate sub-

*) *A. astigmata* *Rothsch.* & *divitefimbriata* *Rothsch.* (Suppl. Vol. 3, p. 179) are forms of *Rh. kermesina* (*Agrotinae*) (Suppl. Vol. 3, p. 78).

terminal line. Hindwings yellowish white, brownish at margin and with discal lunule reflected through. Fringes white. Head and collar a remarkably striking yellowish white, palpi laterally black. Persia (Kendevan Pass and Tacht-i-Suleiman), in the Elburz mountains, beginning to middle of July.

E. ellisoni Bours. (26 l). Forewings brownish, admixed with yellow, heavily marked. Both anterior *ellisoni*. transverse lines distinct. Claviform stigma only indicated, orbicular as a very small dark dot, the distinct reniform with pale centre and dark brown surround. Between them a well marked central shade. Posterior transverse line very distinct, dark brown. Postmedian area pale in inner half, forming a wide dark band in outer half, behind which lies the distinct subterminal line. Marginal area impure brown with blackish marginal streaks in the interstices of the veins. Hindwings brownish white, shaded outwardly and with an interrupted marginal line between veins 2 and 6. Wing expanse: 29 mm. Lebanon, from around Bescharré, in Juni and August. Perhaps this is only a race of the preceding species.

E. wulschlegeli Pglr. (Vol. 3, p. 210, pl. 45 b; Suppl. Vol. 3, p. 177) — **schwingenschussi** Bours. (25 l) *schwingen-*
differs from the typical form from Zermatt by the rather more yellowish and paler general colouration and the *schussi*. more distinct and pronounced markings of lines and stigmata. Bithynia (Boli); Ak-shehir (Sultan-Dagh) in June and July.

E. clavipalpis Scop. (= *avicula* Krul.) (Vol. 3, p. 211, pl. 45 c; Suppl. Vol. 3, p. 178).

E. scotoptera Pglr. (Suppl. 3, p. 179).

E. jacobsi Rothsch. (= *Miana lignea* Trti.) (Suppl. Vol. 3, p. 179 and p. 160).

E. atriluna Gn. (= *angularis* Trti.) (Vol. 3, p. 208, pl. 42 g).

E. flava Obth. (Vol. 3, p. 209, pl. 45 a; Suppl. Vol. 3, p. 176).

E. casearia Stgr. (Vol. 3, p. 214; Suppl. Vol. 3, p. 181).

E. distigma Chrét. (= *halimi* Chrét.) Suppl. Vol. 3, p. 180 and 182).

4. Subgenus: **Eremodrina** Bours.

Characterised by the frequently unsymmetrical ends of valves and a thimble-shaped basal appendage.

Type: *E. vicina* Stgr.

E. vicina Stgr. (= *perspicua* Warr.) (Vol. 3, p. 211, pl. 45 c and 213, pl. 45 f; Suppl. Vol. 3, p. 180) — **rosea** Bours. is somewhat larger and suffused with reddish. Lebanon (Sannin). *rosea*.

E. asymmetrica Bours. (= *perspicua* Filipj. nec Warr.) (26 h). Forewings yellowish brown with ob- *asymmetrica*. scure markings, both transverse lines just discernible. Orbicular stigma a slightly darker spot, reniform of usual shape, postmedian area very faintly brownish. Hindwings yellowish white, dusky at margin. ♀ somewhat darker, hindwings suffused with brownish. Wing expanse: 28 mm. Germob, from around Askhabad, in July.

E. belucha Swinh. (Vol. 3, p. 213, pl. 45 f) (26 i).

E. clara Schaw. (Suppl. Vol. 3, p. 180) (26 i) has hitherto been considered partly as a *bermeja* form *clara*. and partly as a *pertinax* form, but proves to be a genuine species. — **barbarica** Bours. (= *perinax inumbrata* *barbarica*. Rothsch. nec Stgr.) differs from the typical form by the yellowish brown ground colour with faint salmon pink hue, not whitish as in the spanish form. Size is also considerably larger (36 mm). Algeria (Oran) in October. — **armeniaca** on the contrary is decidedly smaller and has very distinct salmon pink ground colouration. *armeniaca*. Markings are heavier, reniform stigma has several white dots in its lower half and the dark marginal band contrasts with the ground colour. On hindwings the dark marginal band is wider and boldly outlined from the white ground. Wing expanse: 32—32.5 mm. Armenia (Nachitshevan; Dzhuga near Dzhulfa on the Araxes); September, October.

E. inumbrata Stgr. (Vol. 3, p. 213; Suppl. Vol. 3, p. 180).

E. filipjevi Bours. ♂ antennae with short fascicles of cilia only at base. Forewings yellowish, both *filipjevi*. transverse lines present. Orbicular stigma is barely indicated, claviform stigma is absent, the brownish reniform is of usual shape. Postmedian and subterminal areas are faintly darker than the rest of the wing. Hindwings yellowish white, faintly shaded at margin. Wing expanse: 30 mm. Kara-Tjube, S. E. of Samarkand, only 1 ♂ known, captured in August.

E. xanthorhoda Bours. (25 l). Forewings yellowish with faint rosy hue, distinct and clear anterior trans- *xanthorhoda*. verse line and central shade, barely visible orbicular and brownish reniform stigmata. Posterior transverse line also clear. Postmedian area widely dusky outwardly, separated from the more brownish marginal area by the distinct subterminal line. Fringes pale. Hindwings impure whitish, slightly shaded outwardly. Persia (Elburz; Demavend) in July.

E. expansa Alph. (Vol. 3, p. 213; Suppl. Vol. 3, p. 178, pl. 26 i).

draudti. **E. draudti** Bours. (26 h). Forewings yellowish brown with very distinct transverse lines. Claviform and orbicular stigmata are absent, reniform stigma indicated by darker shading. Postmedian area brownish. Hindwings impure white with dusky margin. The ♀ is more heavily marked, especially the transverse lines very distinct. Hindwings barely darker than in ♂. Wing expanse: 26 mm. Turkish Armenia (from around Van); September.

roxana. **E. roxana** Bours. (26 i). Forewings yellowish, sandy brownish with darker apex and outer margin. The distinct transverse lines extend from black costal dots, as also does the faint central shade. Claviform and orbicular stigmata are absent, reniform is normal and distinctly darker. Postmedian area becomes intenser to subterminal line, which consists of yellowish striations. Marginal area beyond is also dark. Fringes yellowish. Hindwings impure yellowish white, faintly shaded brownish outwardly. Wing expanse: 30 mm. Kara-Tjube (S. E. of Samarkand).

eucrinospila. **E. eucrinospila** Bours. (26 h). Forewings pale brownish grey with subbasal indicated, anterior transverse line very bold, posterior line faint, only rather more distinct at inner margin. Orbicular stigma is a black dot; the very distinct reniform stigma has the shape of an elongate narrow streak. Postmedian area is faintly darker brownish. Subterminal line is only indicated towards the apex by a few blackish striations. Hindwings whitish with brownish margin. The ♀ is somewhat darker and more heavily marked. Hindwings dusky brownish in marginal half. Wing expanse: 25 mm. Askhabad, Germab, in July.

E. melanurina Stgr. (Vol. 3, p. 214, pl. 45 g; Suppl. Vol. 3, p. 182).

zernyi. **E. zernyi** Bours. (26 h). Forewings yellowish sandy brown with discernible basal, anterior and posterior transverse lines. Claviform and orbicular stigmata are absent, reniform is brownish with a pale dot in its outer part. Postmedian area is darker than the rest of the wings, with a pale subterminal line. Hindwings white, faintly brownish at margin. The ♀ is somewhat darker, especially in postmedian area. Wing expanse: 30—31 mm. Sarepta; Amasia; Taurus (Adana); Syria (Akbès). — **debilis** Bours. is much smaller (wing expanse: 26 mm), ground colour is much paler brownish. Iraq, Rowanduz (E. Mossul). — **signata** Bours. The two transverse lines are much heavier, especially the anterior line, so that it appears to vary considerably from type. Armenia (Dzhuga near Dzhulfa).

eremocosma. **E. eremocosma** Bours. (26 i). Forewings creamy yellow with paler costa, outer area faintly brownish. Basal line with black costal dot. Anterior transverse line consists of 3 blackish striations. Claviform and orbicular stigmata are absent. The very pronounced central shade is dark blackish brown and partially encloses the large reniform stigma. The posterior transverse line and subterminal lines are absent. Subapically there is a black-brown diffuse streak. Hindwings impure white with dark outer band. Wing expanse: 29 mm. Iran, Luristan; in October, only 1 ♂ known.

E. fergana Stgr. (Vol. 3, p. 213; Suppl. Vol. 3, p. 180).

agenjoi. **E. agenjoi** Bours. (26 h). Forewings impure yellowish grey, transverse lines, with the exception of the antemedian, are barely indicated. Claviform stigma is absent, orbicular and reniform stigmata are discernible. Postmedian and subterminal areas are faintly brownish. Hindwings whitish, faintly dusky at margin. Wing expanse: 29 mm. Taurus (Zeitun).

E. bermeja Ribbe (= *ibeasi* Fdz.) (Suppl. Vol. 3, p. 180).

salzi. **E. salzi** Bours. (26 h). ♂ antennae with short fascicles of cilia. Forewings rosy yellow with barely indicated anterior and posterior transverse lines. Orbicular and reniform stigmata are present, the claviform is absent. Postmedian area is shaded with brownish especially towards the apex. There is a dusky subterminal line in the shaded subterminal area. Hindwings whitish, greyish at margin and particularly along the veins. Wing expanse: 30 mm. Malatia, Diabekir district (Turkish Kurdistan), in September.

argentea. *E. pertinax* Stgr. (Vol. 3, p. 212, pl. 48 b; Suppl. Vol. 3, p. 180). — **argentea** Car. is a nice pale dusty grey form without the shading at outer margin of forewings. From the Silver Coast (S. Rumania).

hedychroa. **E. hedychroa** Bours. (26 h). Forewings yellowish salmony rose with faintly indicated transverse lines and orbicular stigma. Reniform stigma is of the usual shape, standing out by its darker shade, as also does the postmedian area. Claviform stigma is absent. Subterminal line of the same colour as the ground. Hindwings whitish, brownish at margin. Wing expanse: 31.5 mm. Lebanon (Bescharré; Sannin), in August.

E. melanura Alph. (Suppl. Vol. 3, p. 180).

E. morosa Led. (Vol. 3, p. 209, pl. 45 a; Suppl. Vol. 3, p. 176).

turatii. **E. turatii** Bours. (= *vicina* Culot nec Stgr.) (26 i). Forewings pale yellowish sandy brown with faint salmony suffusion. Both transverse lines present. Orbicular and reniform stigmata are distinct, whilst claviform stigma is absent. Subterminal line is indicated by being slightly darker. Hindwings whitish, dusky at margin. In ♀ the anterior transverse line is less distinct and marginal area of hindwings is more heavily shaded. Wing expanse: 31.5 mm. Issyk-kul, Korla, Askhabad; 1 ♂ from Iraq (Hitte) that is rather deeper rose, the markings being less distinct.

E. turbulenta Warr. (Vol. 3, p. 211, pl. 45 c, d).

E. bodenheimeri Drt. (= *crassicornis* Bours. i. l.) (Suppl. Vol. 3, p. 176, pl. 21 c). Unfortunately AMSEL's description and manuscript in regard to this species reached me after the publication of the relative part of SETTZ' work and therefore according to the rules of nomenclature the name of the author had to be altered. — **chlorotica** Bours. differs from typical forms from Palestine by the smaller size (26 mm) and much paler colour, being without the yellow-reddish tone and corresponding therein to the race *debilis* of *zernyi* Bours. Rowanduz (Iraq), E. Mossul, in September. — **plesiarchia** Bours. is a clearer yellowish brown without the reddish hue. Iran (from around Teheran).

E. gilva Donz. (Vol. 3, p. 213, pl. 45 g; Suppl. Vol. 3, p. 181). — **orientalis** Bours. is darker, markings more diffuse, colouration therefore more monotonous. Ak-shehir.

E. unbratilis Drt. (Suppl. Vol. 3, p. 181).

E. alfierii Bours. (26 k). Forewings whitish, bestrewn with impure brown and with wide blackish marginal band. The indistinct anterior transverse line arises from a black costal dot. The small orbicular stigma is barely visible, the brownish reniform is distinct and between the two there is a faint central shade. The posterior transverse line is distinct, dark, beyond it first a narrow pale band, then a very wide similarly shaped blackish marginal area without any markings. Fringes blackish brown. Hindwings impure white, widely shaded with blackish brown at outer margin. Wing expanse: 30 mm. Sinai, from around Arad in November. Only 1 ♀ is known.

75a. Genus: **Pseudathetis** Bours.

To be classified after *Dysmilichia*. Characteristic is the decidedly arched frons that has below a chitinous projecting ridged edge. Genitalia with bent valves, as in some of the *Hadeninae*. Only 1 species:

P. fixseni Christ. (Vol. 3, p. 214, pl. 48 d; Suppl. Vol. 3, p. 181).

75b. Genus: **Stygiodrina** Bours.

Frons very thin and transparent: palpi fairly long and with fine terminal segment; Thorax covered with stout scales, forming a small tuft anteriorly and a bolder tuft on metathorax. The copulating organs show long narrow valves with a weak corona, remarkably shaped harpes with 4 differently shaped spines and penis with slight armature. Only 1 species:

S. maurella Stgr. (Vol. 3, p. 213, pl. 45 g).

76. Genus: **Proxenus** H.-Schäff.

According to the elucidations of BOURSIN, upon which we cannot enter in detail here, the name for this Genus should be: **Athetis** Hbn., which was established in 1822 with the type *furvula* Hbn., whilst *Proxenus* was only created in 1845. To be assembled here are:

A. delecta Moore (Vol. 3, p. 208, pl. 42 g).

A. divisa Moore (Vol. 3, p. 208, pl. 42 g).

A. obtusa Hmps. (Vol. 3, p. 212, pl. 45 e).

A. sincera Swinh. (Vol. 3, p. 212, pl. 45 e).

A. kitti Rbl. (Suppl. Vol. 3, p. 181).

A. furvula Hbn. (= ? *dasychira* Hbn., *lenta* Tr.) (Vol. 3, p. 208; Suppl. Vol. 3, p. 175).

A. funesta Stgr. (Vol. 3, p. 213, pl. 45 f).

A. gluteosa Tr. (Vol. 3, p. 213, pl. 45 f, g).

A. corticea Hmps.

A. lapidea Wilem. (Suppl. Vol. 3, p. 175).

A. correpta Pglr. (Vol. 3, p. 205, pl. 42 f; Suppl. Vol. 3, p. 174).

A. lepigone Mschlr. (Vol. 3, p. 216, pl. 45 i).

96b. Genus: **Atypha** Hbn.

Frons only slightly chitinised. Terminal segment of palpi thin and sleek, thorax covered with hairy scales, with bold tuft on metathorax. Genitalia very different from *Elaphria* (*Athetis*). Only 1 species:

A. pulmonaris Esp. (Vol. 3, p. 209, pl. 42 k).

83. Genus: **Propsalta** Wkr.

P. enigmatica Trti. is provisionally placed here by its author. Forewings wide with pointed apex and faintly curved margin. They are brown with rosy tone, anterior transverse line not very distinct, similarly

a median line from costa to inner margin. The postmedian is more apparent, it is formed of brown striations in the interstices between the veins and forms a loop below the cell. In between the central area is somewhat darker. Instead of orbicular and reniform stigmata there is a large and irregular black patch, that touches the costa with its point and on underside extends to inner margin in nice black arches. A small black spot in basal area. Subapically there is a short dark shade, that extends downwards to centre of wing as a subterminal. Hindwings dark brown. Fringes inclined to rose. Wing expanse: 24 mm. Cyrenaica (Barce), end of September.

88. Genus: **Catamecia** Stgr.

buxtoni. **C. buxtoni** Rothsch. is said to be closely related to *deceptrix* Stgr. (Vol. 3, p. 222, pl. 47 c; Suppl. Vol. 3, p. 184) but can immediately be differentiated by the less arched postmedian, which is also much less boldly dentate. The black basal streak is much more heavily marked and bent. Reniform stigma larger. Towards the base from the two stigmata, there is a large black spot. Subterminal band is very clearly marked and angulated at vein 4. Hindwings less purely white than in *deceptrix* and with irregular grey shades. Wing expanse: 42 mm. Ali-ash-Shargi; Kumait, in November. BOURSIN considers that possibly the species should be placed with *Clytie scotorrhiza*.

111. Genus: **Archana** Wkr.

wiltshirei. **A. wiltshirei** Byt.-S. Wing contour wider than in *geminipuncta* Haw. (Vol. 3, p. 236, pl. 49 g; Suppl. Vol. 3, p. 193). Ground colour pale reddish brown, somewhat darker in ♂, the white discal dot extinct, on the other hand the 2 dark cell spots very large, the one at end of cell is quadrate. Veins, especially at outer margin, are dusted with black. Hindwings paler than forewings. Genitalia differ from *geminipuncta*. Wing expanse: 34 mm. Syria (Arnik). — **brunnea** Byt.-S. is much darker brown, about like the form *nigricans* Stgr. of *geminipuncta*, the white cell end spot is quite absent, the outer third is dusted with black. The grey hindwings are darker than forewings. Generally the species seems to be variable.

113. Genus: **Nonagria** Tr.

As already mentioned on p. 271: *distracta* Ev. (= *cinerea* Alph., *megastigma* Pglr., *mollicella* Pglr.) (Vol. 3, p. 216) should be classified here.

Subfamily: **Melicleptriinae**.

8. Genus: **Timora** Wkr.

T. albida Hmps. (Suppl. Vol. 3, p. 197). The author of *Lecerfia chitinipyga* was DUMONT and not LUCAS.

Subfamily: **Erastrinae**.

10. Genus: **Porphyrinia** Hbn.

peralbida. **P. albida** Dup. (Vol. 3, p. 268, pl. 51 g, h; Suppl. Vol. 3, p. 204). — **peralbida** Trti. On the milky white forewings only the yellowish preapical oblique streak is visible, that is continued very faintly as a subterminal to the inner margin. Hindwings very faintly dusky at margin. Cyrenaica (Lamluda).

19. Genus: **Xantholeuca** Hmps. (1910).

The generic name must be changed into: *Chionoxantha* Hmps., on account of the prior *Xantholeuca* Steph. (type *croceago* F.) (1831).

28a. Genus: **Coeloturatia** Strd.

patanei. **C. patanei** Trti. (Suppl. Vol. 3, p. 207 and 264). TURATI is able to give particulars of the biology of this remarkable species. The adult larva is dull black dorsally and ivory white ventrally. Head is glossy black, mandibles brown. Thoracical and terminal segments have sulphur-yellow dorsal stripes that are outlined with orange. An orange-yellow lateral line is dotted with black and is edged on top by yellow crescents and below by a yellow line. The black warts have white bristles. It feeds on *Urginea* (*Scilla*) *maritima* and changes to a brown pupa.

Subfamily: **Acontianae**.

14a. Genus: **Aneureta** Trti.

Antennae in both sexes filiform, in ♂ finely ciliate; frons with smooth chitinous projection; palpi with thick terminal segment that is slightly bent outwards. Proboscis developed. Forewings with slightly curved margin, that is faintly bent inwards above the anal angle. Vein 6 arises from centre of cell, if this should not

be the discal fold; veins 3, 4 and 5 together from the lower angle of cell, 7 arises from upper angle of cell, 8 from the tip of the appendicular cell from which also 9 and 10 arise stalked. On hindwings 3, 4 and 5 arise from the lower angle of cell, 6 and 7 from the upper angle. The neuration therefore more or less agrees with that of the Genus: *Westermannia* Hbn., which is widely distributed over the indo-australian and african territories. There is the possibility that the description of the neuration is not quite precise and that *Aneureta* is quite identical. Besides this *Westermannia superba* Hbn. certainly also occurs on palaearctic territory, as a large number have been captured at West Tien-mu-shan and are in the collection of HOENE.

A. eureka Trti. Forewings dark yellow, about as in *Aethia emortualis* Schiff., with 2 somewhat paler *eureka*. undulate transverse lines, that enclose an approximately trapeziform central area. This is wide at costa and very narrow at inner margin and in it is contained a small brownish discal dot. Hindwings brownish yellow, devoid of markings and with fringes of the same shade. Abdomen whitish with a brown tuft on first segment. — **transversalis** Trti. has central area filled with deep chestnut brown with a similar costal patch subapically. *transversalis*. Wing expanse: 33—39 mm. Cyrenaica (Wadi Ruf), captured in March.

Subfamily: **Phytometrinae.**

4. Genus: **Phytometra** Haw.

P. generosa Stgr. (Vol. 3, p. 354; Suppl. Vol. 3, p. 222). — **malatyana** Byt.-S. is paler and inclined to *malatyana*. be suffused with rosy reddish with 2 metallic green bands, one basal and the other wider one subterminally. The latter merges with the postmedian at inner margin. Hindwings also paler than in type. From Malatia.

Subfamily: **Noctuinae.**

66. Genus: **Metoponrhis** Stgr.

M. rungsi D. Luc. (23 k). Forewings ochreous reddish in basal area, black in median area with the *rungsii*. exception of the grey and ochreous yellow reniform stigma. Posteriorly the colour is ochreous reddish and in marginal area grey-blackish in which a very delicate yellowish dentate line is situate. The white fringes are intersected with grey. Hindwings ochreous with wide grey marginal band. Wing expanse: 25 mm. Morocco (Foum-el-Hassan), in March.

71. Genus: **Parascotia** Hbn.

P. detersa Stgr. (Vol. 3, p. 399, pl. 74 b). The illustration on plate 74 b was unrecognisable. A fresh *detersa*. illustration is now given (24 f).

P. robiginosa Stgr. (Vol. 3, p. 399, pl. 74 c). Here also the picture on plate 74 c was poor and a better *robiginosa*. illustration is given (24 f).

P. nissenii Trti. (Vol. 3, p. 399, pl. 71 c) is also illustrated afresh (24 f), as the species could not be re-*nissenii*. cognised from the picture on pl. 71 c.

74. Genus: **Raparna** Moore.

R. luteoflaveola Trti. This new species is compared to *conicephala* Stgr. Forewings monotonous yellow, *luteoflaveola*. devoid of markings and with pale brown fringes. Hindwings yellowish, somewhat paler towards base. Wing expanse: 22 mm. Cyrenaica (Lamluda), in June.

78. Genus: **Paragona** Stgr.

P. multisignata Chr. (Vol. 3, p. 402, pl. 71 d). The illustration on pl. 71 d is unrecognisable and a better *multisignata*. picture is given here (24 f).

92. Genus: **Ectogonia** Hmps.

E. albomaculalis Brem. (Vol. 3, p. 412). A better illustration is now given (24 f) as the one given on *albomaculalis*. plate 74 b was unsatisfactory.

99a. Genus: **Zanclostathme** gen. n.

To be classified between *Zanclognatha* and *Herminia*; very closely related to the neotropic Genus: *Ocalaria* Schs. Proboscis developed, frons smooth; palpi sickle-shaped, curved upwards, the 2nd segment 4 times as long as the head, the terminal segment sleek, the tip pointed, half as long as 2nd segment and laterally flattened with densely, closely appressed scales. ♂ antennae with prolix double pectinations of considerable length, having also rows of delicately fine long cilia. In ♀ antennae are simple. On forewings veins 3, 4 and 5 arise separately at equal distances, 6 arises just below the upper angle of cell, 7 from the end of the narrow appendicular cell, similarly 8 and 9 on a common long stalk, 10 from the upper outer third. On hindwings 3 and 4 arise from lower angle of cell, 5 below the centre, 6 and 7 from upper angle. Only one species:

elbursalis.

Z. elbursalis *sp. n.* A very delicate, thinly scaled species of pale brownish grey colouration. The markings consist of 3 faintly darker, blurred transverse lines, the anterior one of which is curved, the posterior one is obtusely angulated on vein 4. Both form rectangles with inner margin. The subterminal is only faintly indicated, being concave outwardly between vein 5 and the anal angle. In the ♀ the fasciae are the more distinct, in the ♂ they are scarcely discernible. Hindwings very slightly paler having faintly darker angulated anal marking with paler outer edge. Wing expanse: 28—29 mm. A pair was captured by Mr. E. PFEIFFER in mid July on the Elburz mountains at Demavend, Tar valley at an altitude of 2200—2500 m. Types in the collection of DRAUDT.

123. Genus: **Euterpia** *Guen.*

loudeti.

E. loudeti *Bsd.* (Suppl. Vol. 3, p. 263). It was forgotten to insert the generic title for this species.

Aphabetical List

of the forms of the Palaearctic Noctuae with reference to the original descriptions

* signifies that the form is figured at the place quoted.

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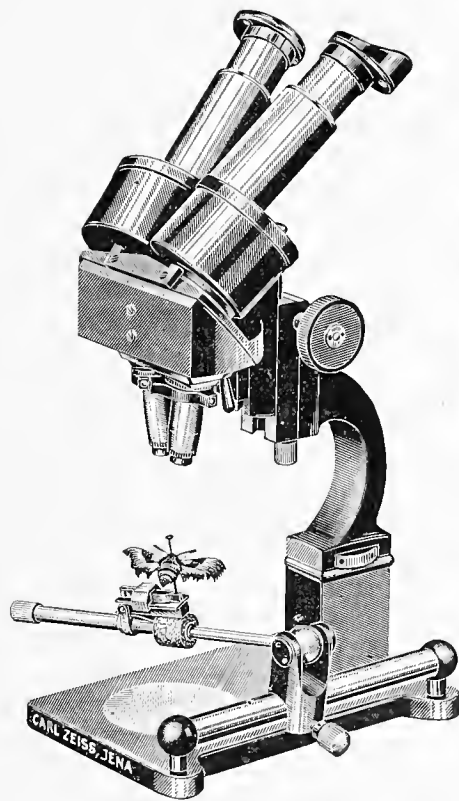
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Errata and Additions to Supplementary Volume 3.

- P. 11 line 28 from below alter marginal name into *anaedina* instead of *anaeadina*.
P. 11 line 25 from below read: **nigromarginata** instead of **nigromaculata**.
P. 12 line 22 from below read reference: (1 i as "*aethiopa*").
P. 15 line 24 from below add after **marmorata** *Trti.*; (2 c).
P. 17 line 24 from below read: (2 e) instead of (2 a).
P. 25 line 20 from above: after **distincta** add *Corti* as author, *distincta* *Stgr.* belongs to *aquilina* (p. 26).
P. 35 line 3 from below: after **islandica** add the reference (4 i).
P. 39 line 9 from above alter (5 a) into (5 c).
P. 46 line 11 from above read: *ochrea* instead of *ochracea*.
P. 49 line 29 from above delete the reference (7 d) of **serena**.
P. 49 line 21 from below alter the marginal name *wehrli* into *wehrlii*.
P. 51 line 7 from below read: (6 e) instead of (6 d).
P. 59 line 9 from above add after **despecta** (*B.-H.* i. 1.) and also *Cti.* & *Drt.*
P. 63 line 23 from below add the reference (8 k).
P. 66 line 17 from below add the reference (14 f).
P. 75 line 27 from below instead of (11 f) read: (24 i).
P. 82 line 12 from above read: (12 e) instead of (12 c).
P. 88 line 13 from above read: **Cerastis** *Tr.* instead of *Fr.*
P. 90 line 28 from below read: (Vol. 3..) instead of (Vol. 2..).
P. 130 line 25 from above delete the reference (16 i).
P. 133 line 3 from above add the reference (17 b).
P. 133 line 14 from below alter reference (16 h) into (17 c).
P. 135 line 2 from below add after **chioleuca** the reference (17 f).
P. 138 line 12 from above delete the reference to **asiatica**.
P. 142 line 8 from above alter (17 e) into (17 l).
P. 148 line 6 from above alter (18 e) into (18 k).
P. 153 line 27 from below delete the *f. n.* after **flavicans**.
P. 155 line 15 from below read: *Fldr.* instead of *Flor.*
P. 156 line 25 from below add the reference (19 e).
P. 156 line 16 from below alter (19 f) into (19 h).
P. 157 line 5 from above add the reference (19 e).

- P. 158 line 7 from below alter (19 h) into (23 c).
P. 159 line 19 from above read: *Haw.* instead of *Hew.*
P. 163 line 5 from above delete the reference (20 f).
P. 163 line 6 from above add to the reference (20 a as *pozzi*).
P. 166 line 21 from above delete the reference (20 e).
P. 166 line 26 from above delete the reference (20 e).
P. 166 line 11 from below delete the reference (20 f).
P. 166 line 7 from below add the reference (23 c).
P. 167 line 7 from above alter (20 f) into (20 e).
P. 167 line 22 from above alter (20 g) into (20 f).
P. 167 line 26 from above alter (20 f) into (20 e).
P. 167 line 25 from below alter (20 g) into (20 f).
P. 167 line 24 from below alter (20 g) into (20 f).
P. 167 line 15 from below alter (20 g) into (20 f).
P. 167 line 11 from below alter (20 g) into (20 f).
P. 167 line 7 from below alter (20 g) into (20 f).
P. 167 line 3 from below alter (20 h) into (20 g).
P. 167 line 2 from below alter (20 h) into (20 g).
P. 168 line 1 from above alter (20 i) into (20 h).
P. 168 line 5 from above alter (20 h) into (20 g).
P. 168 line 10 from above alter (20 h) into (20 g).
P. 168 line 17 from above alter (20 h) into (20 g).
P. 168 line 24 from above alter (20 i) into (20 h).
P. 168 line 26 from above alter (20 i) into (20 h).
P. 168 line 27 from above alter (20 i) into (20 h).
P. 169 line 25 from above alter (20 i) into (20 h).
P. 169 line 2 from above alter (20 i) into (20 h).
P. 170 line 17 from below alter (20 i) into (20 h).
P. 170 line 14 from below alter (20 k) into (20 i).
P. 170 line 7 from below alter (20 k) into (20 i).
P. 170 line 2 from below alter (20 k) into (20 i).
P. 171 line 17 from above read: *cinerescens* instead of *cinerascens*.
P. 172 line 13 from above alter (20 k) into (20 i).
P. 172 line 14 from above alter (20 k) into (20 i).
P. 172 line 17 from below alter (20 l) into (20 k).
P. 172 line 9 from below alter (20 l) into (20 k).
P. 172 line 6 from below alter (20 l) into (20 k).
P. 172 line 5 from below alter (20 l) into (20 k).
P. 173 line 7 from above alter (20 l) into (20 k).
P. 173 line 8 from above alter (20 l) into (20 k).
P. 173 line 9 from above alter (20 l) into (20 k).
P. 181 line 11 from below delete the reference (21 i).
P. 202 line 14 from below alter (23 a) into (22 k).
P. 203 line 12 from above alter (23 a) into (22 k).
P. 203 line 26 from above alter (23 a) into (22 k).
P. 203 line 29 from above alter (23 a) into (22 k).
P. 205 line 11 from below alter (23 a) into (23 c).
P. 210 line 10 from above alter (23 e) into (23 c).
P. 210 line 17 from below delete the reference (23 b).
P. 215 line 20 from below read: Hindwings instead of forewings.
P. 217 line 17 from above read: **O. melicerta** *Dry.* instead of **A. melicerta** *Drc.*
P. 220 line 10 from above: add the marginal name *taurica*.
P. 230 line 10 from below: add the marginal name *angustifasciata*.
P. 231 line 9 from above alter **aksuana** into **axuana**, also the marginal name.
P. 232 line 3 from above alter (24 f) into (23 d).
P. 232 line 16 from above add the reference (24 f).
P. 243 line 23 from below alter (6 i) into (5 e).
P. 247 line 13 from below alter (24 b) into (25 b).
P. 248 line 24 from above delete the reference (24 i).
P. 259 line 22 from above read **E. faroulti** instead of **D.**
P. 261 line 3 from below delete the plate reference (26 f).

- P. 263 line 21 from above delete the plate reference (26 g).
 P. 269 line 3 from above add to the plate reference (26 e as *graslini*).
 P. 272 line 5 from above add the author's name *Brs.*
 P. 279 line 6 from above add after *superba* *Hbn.* (Vol. XI, pl. 42 h).
 P. 280 add after *Z. elbursalis* *Drt.*, that it should be placed as synonym to *Hyrceanypena schwingenschussi* *Wgnr.*, as the latter species was described one day earlier (*Ztschr. öst. Ent. Ver.* 22, 1937, No. 6, p. 2).



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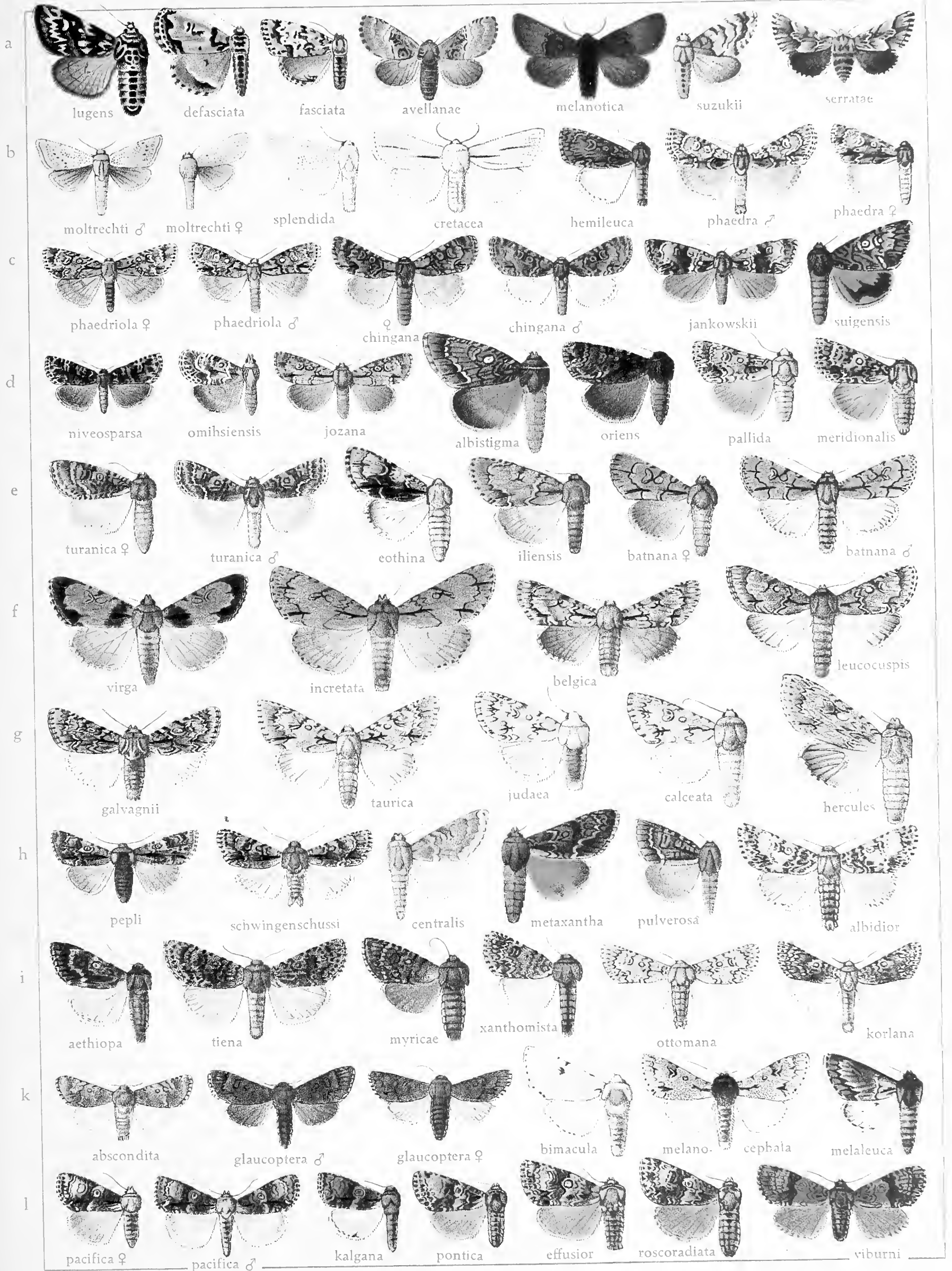
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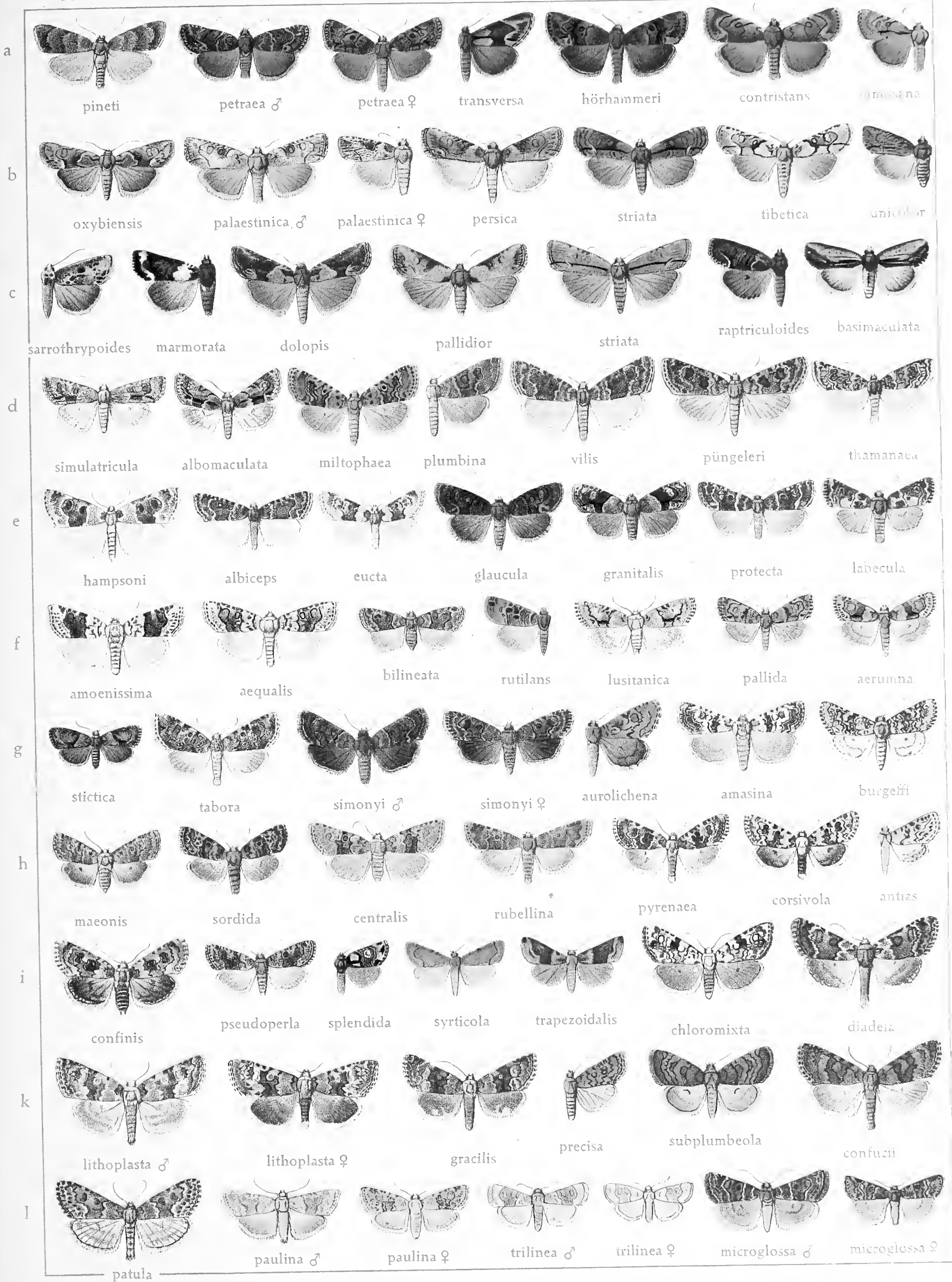
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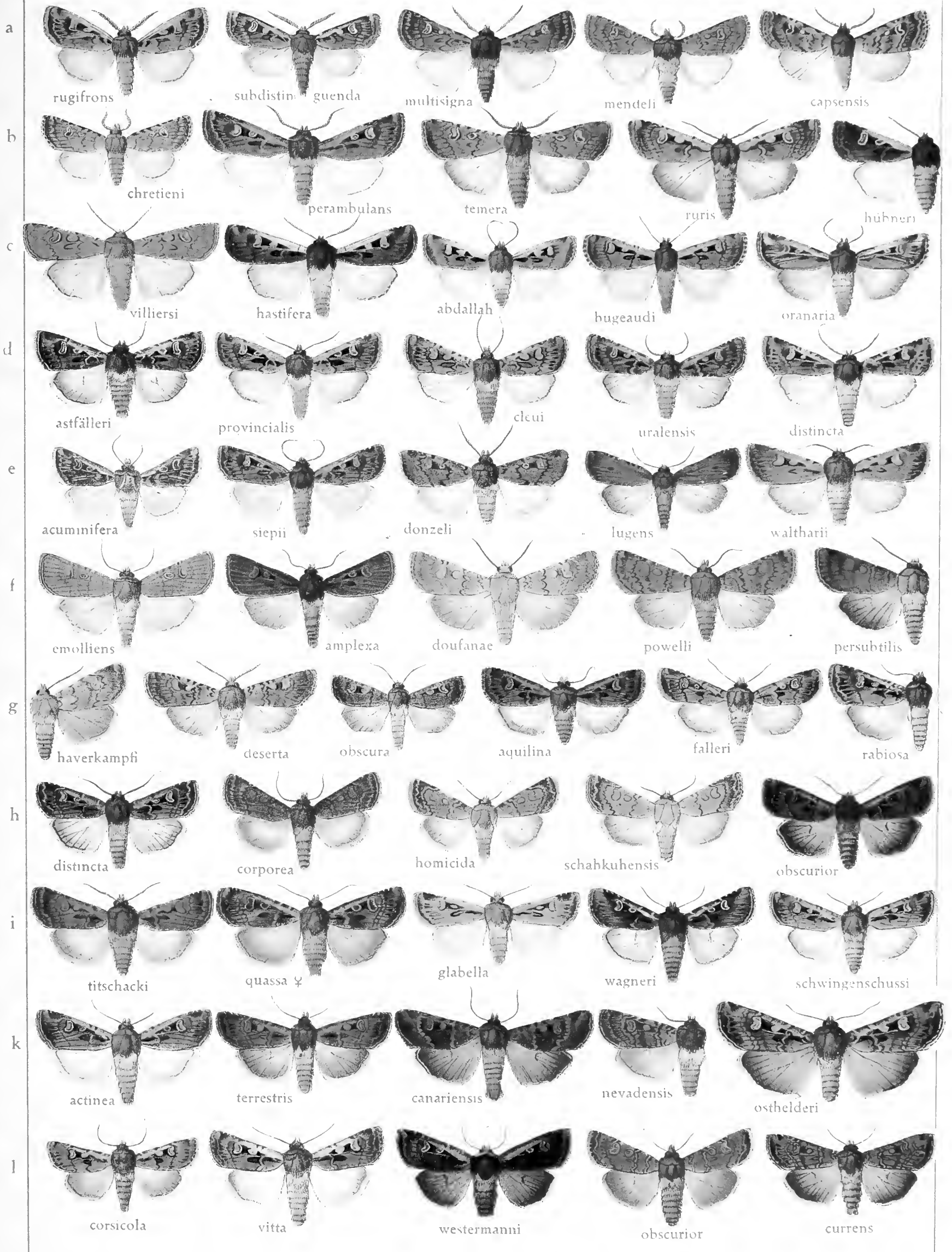
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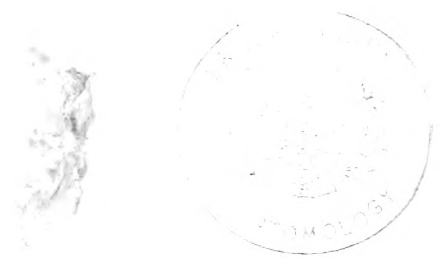
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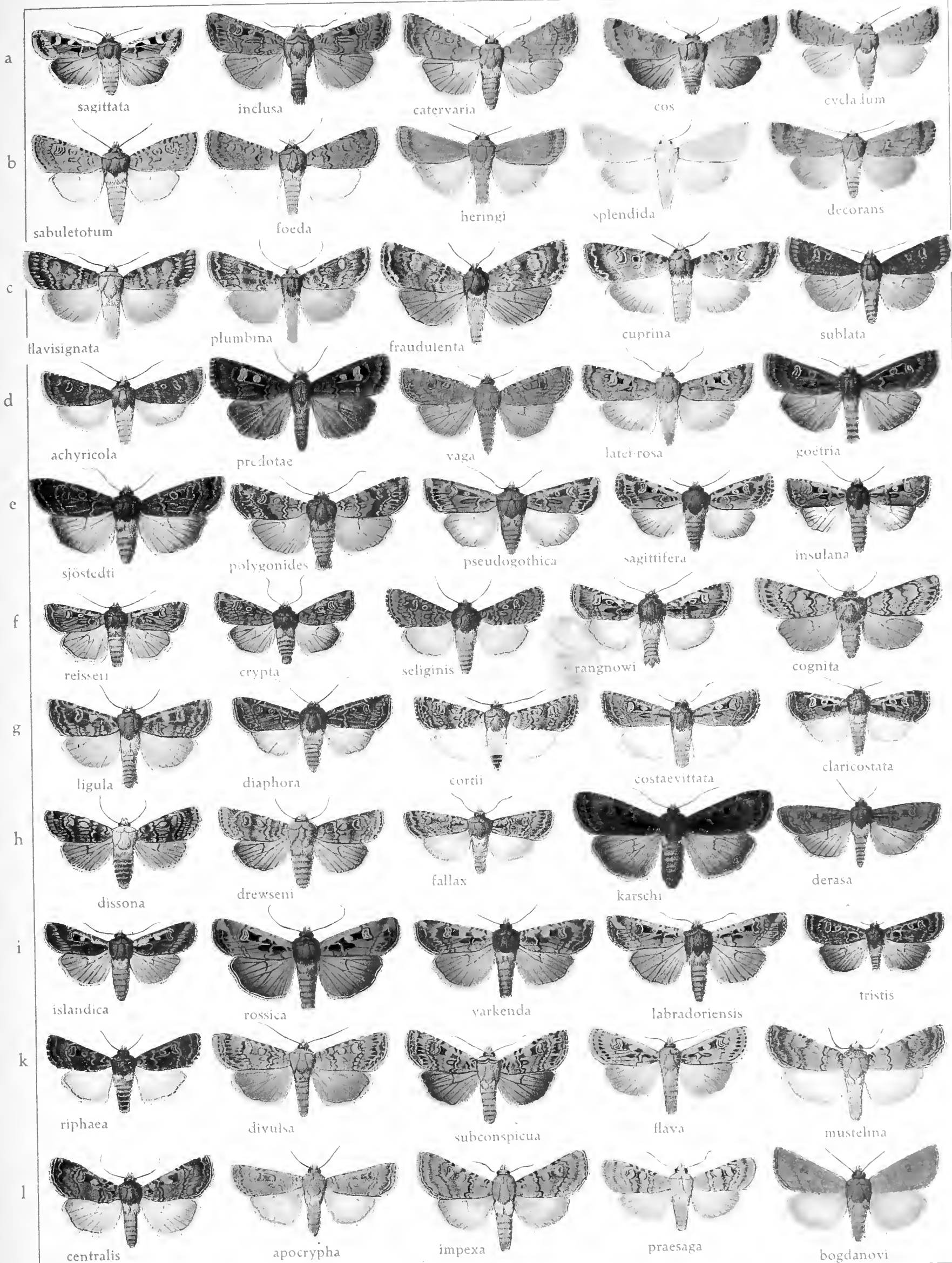
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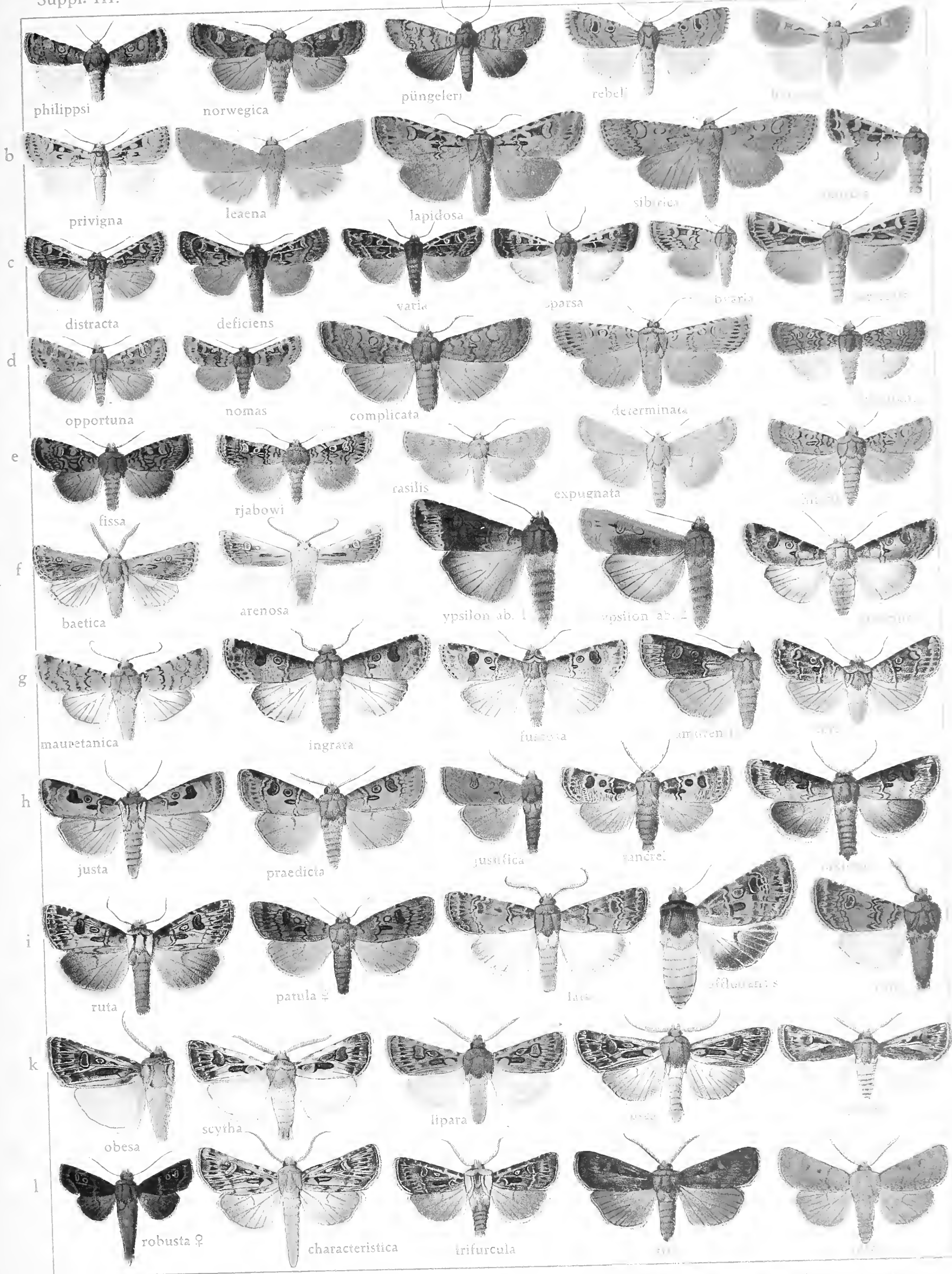


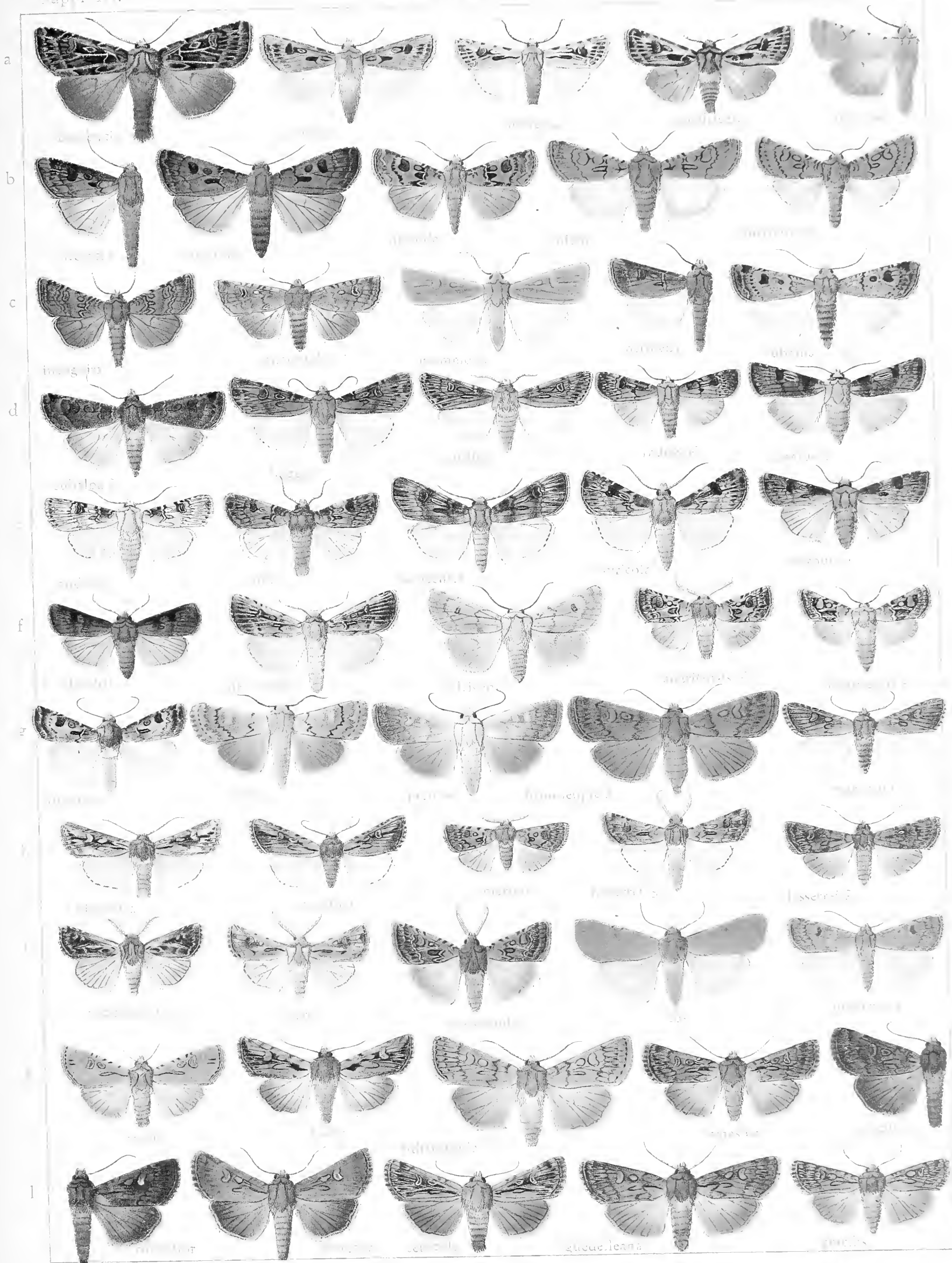


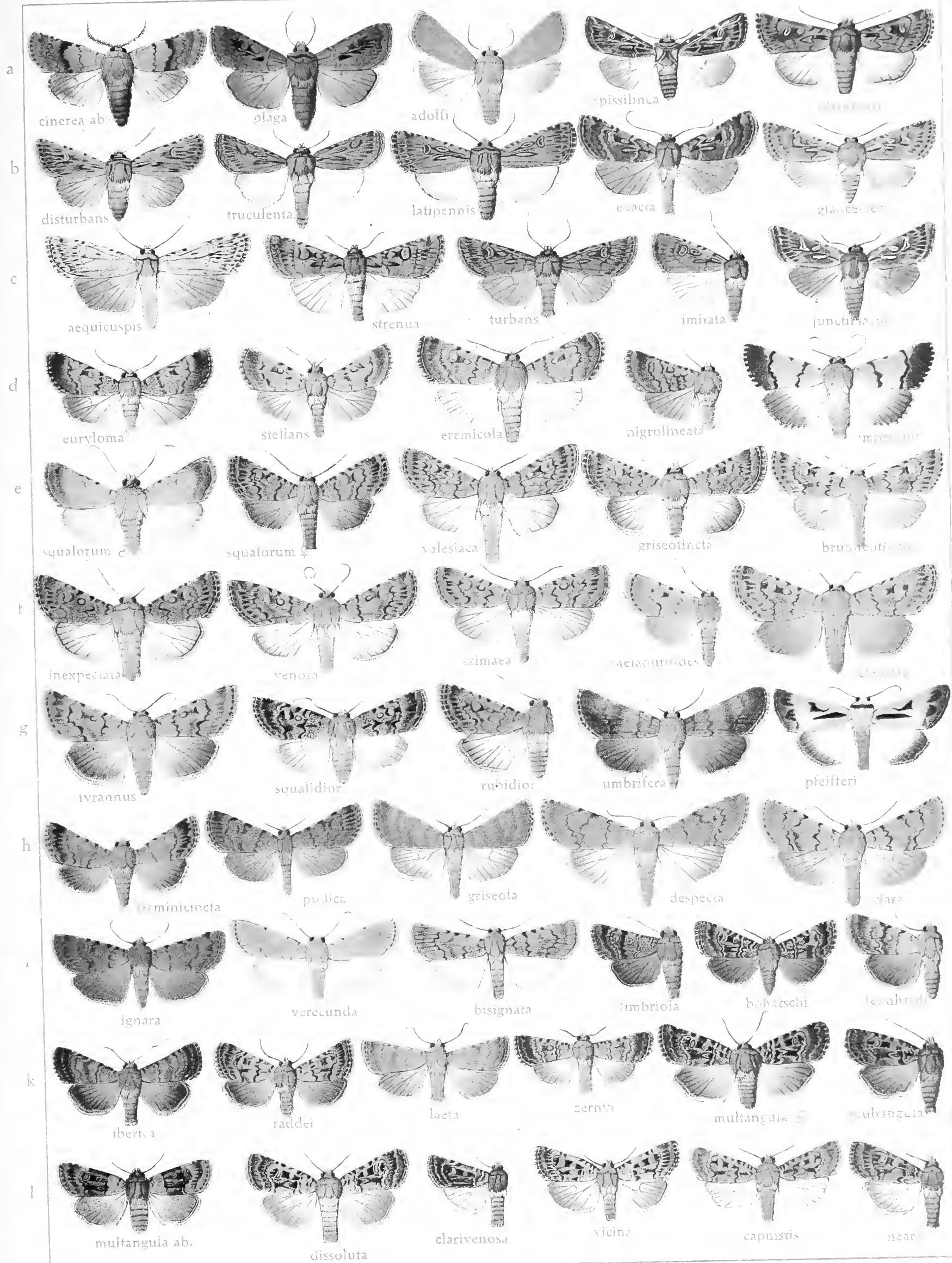


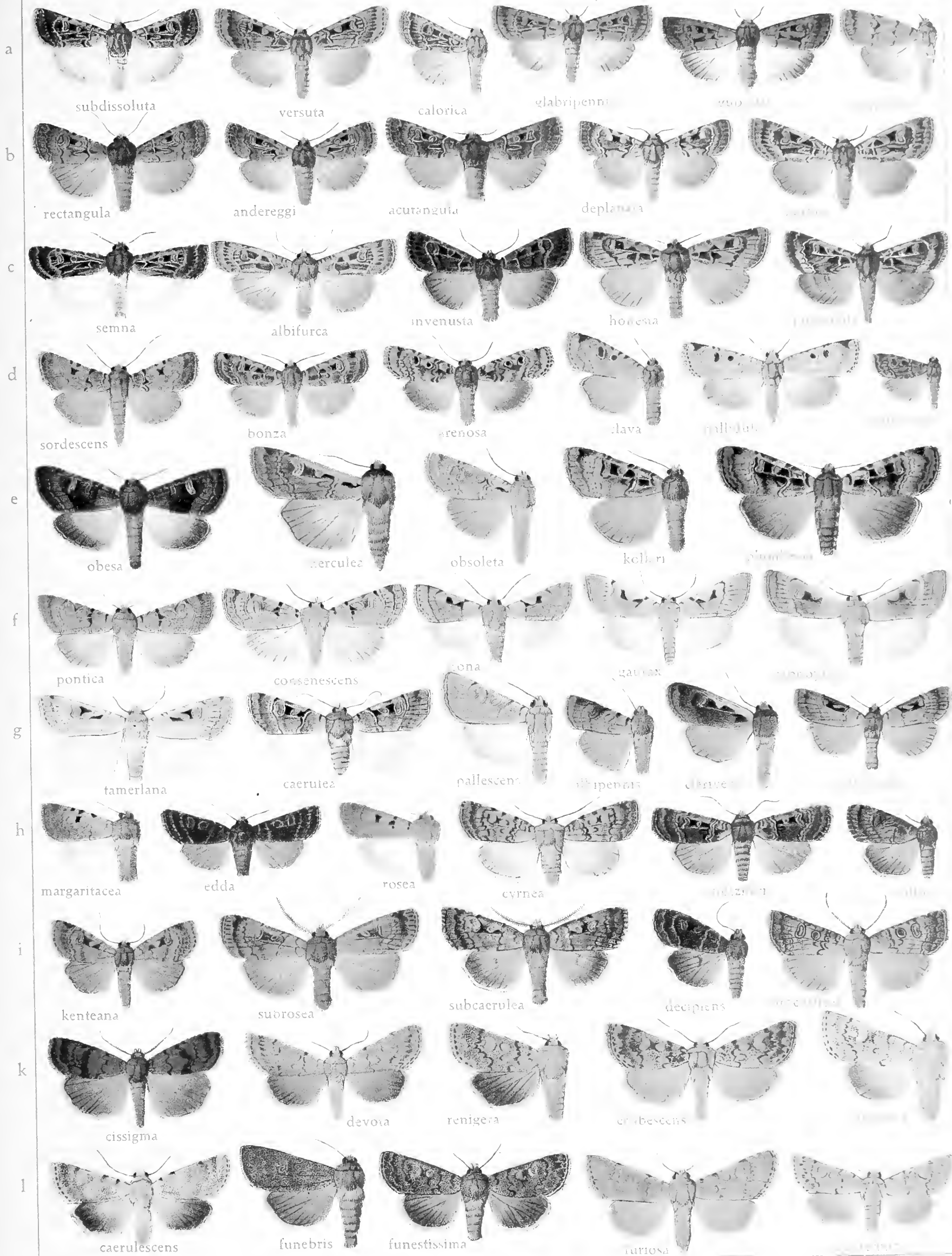


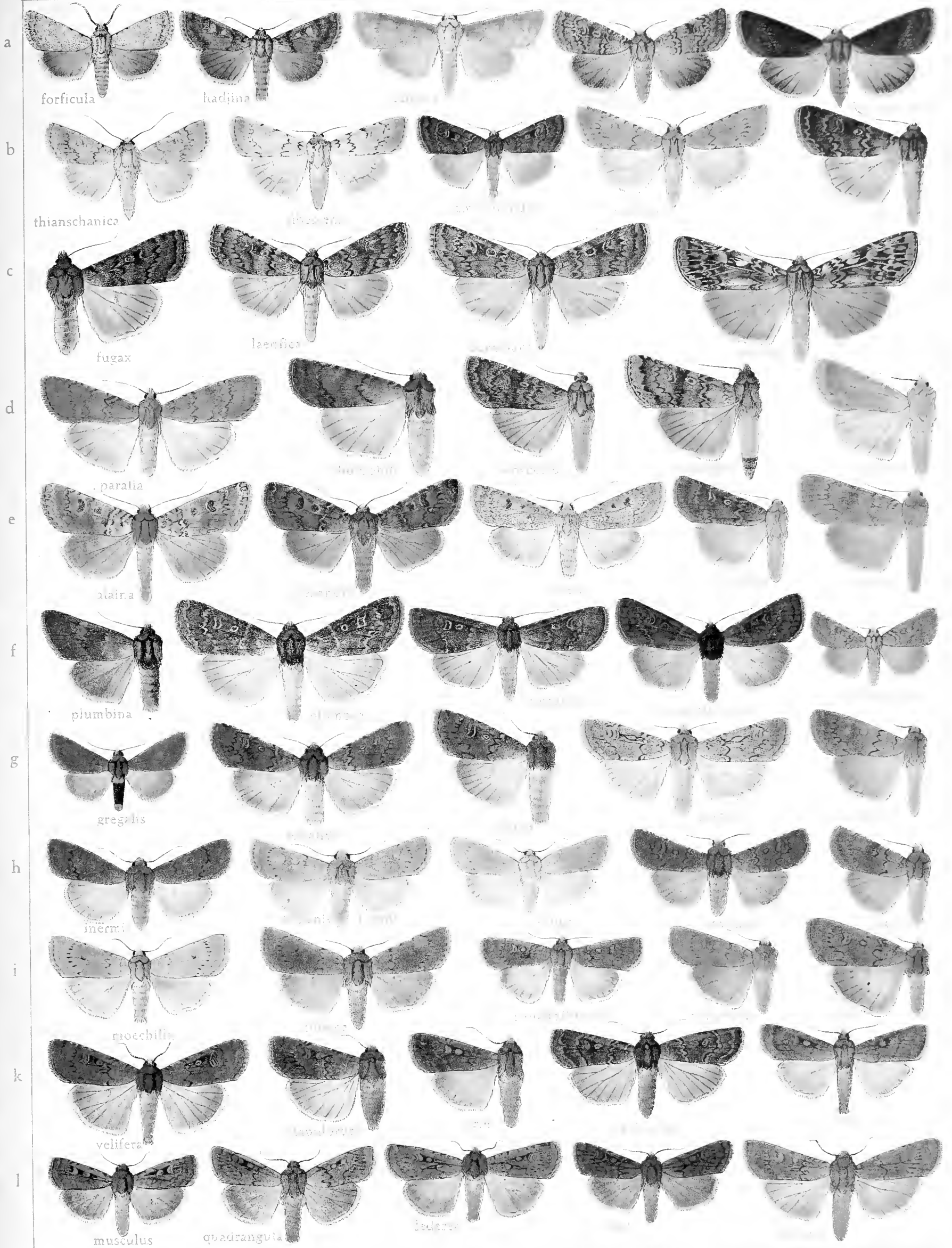




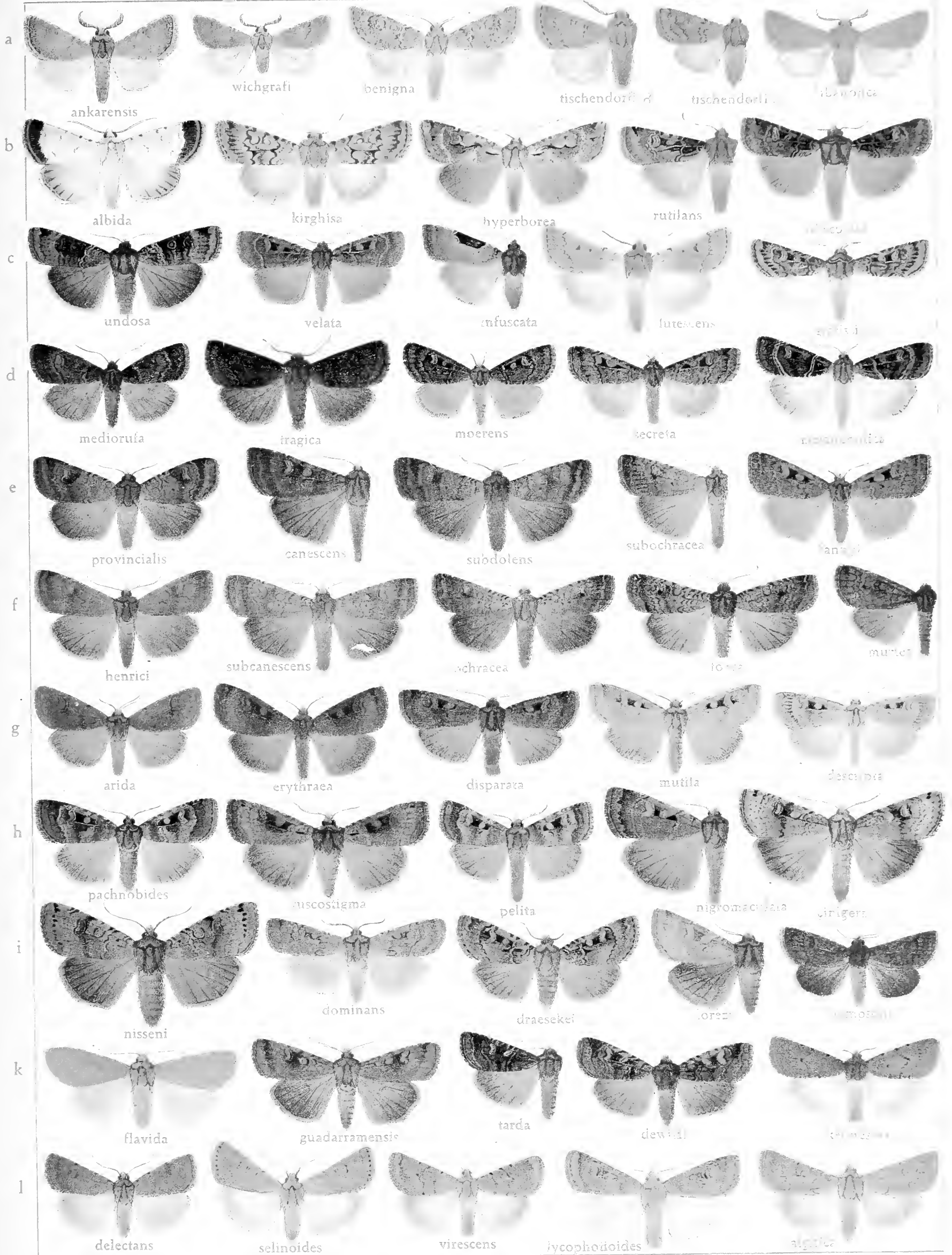




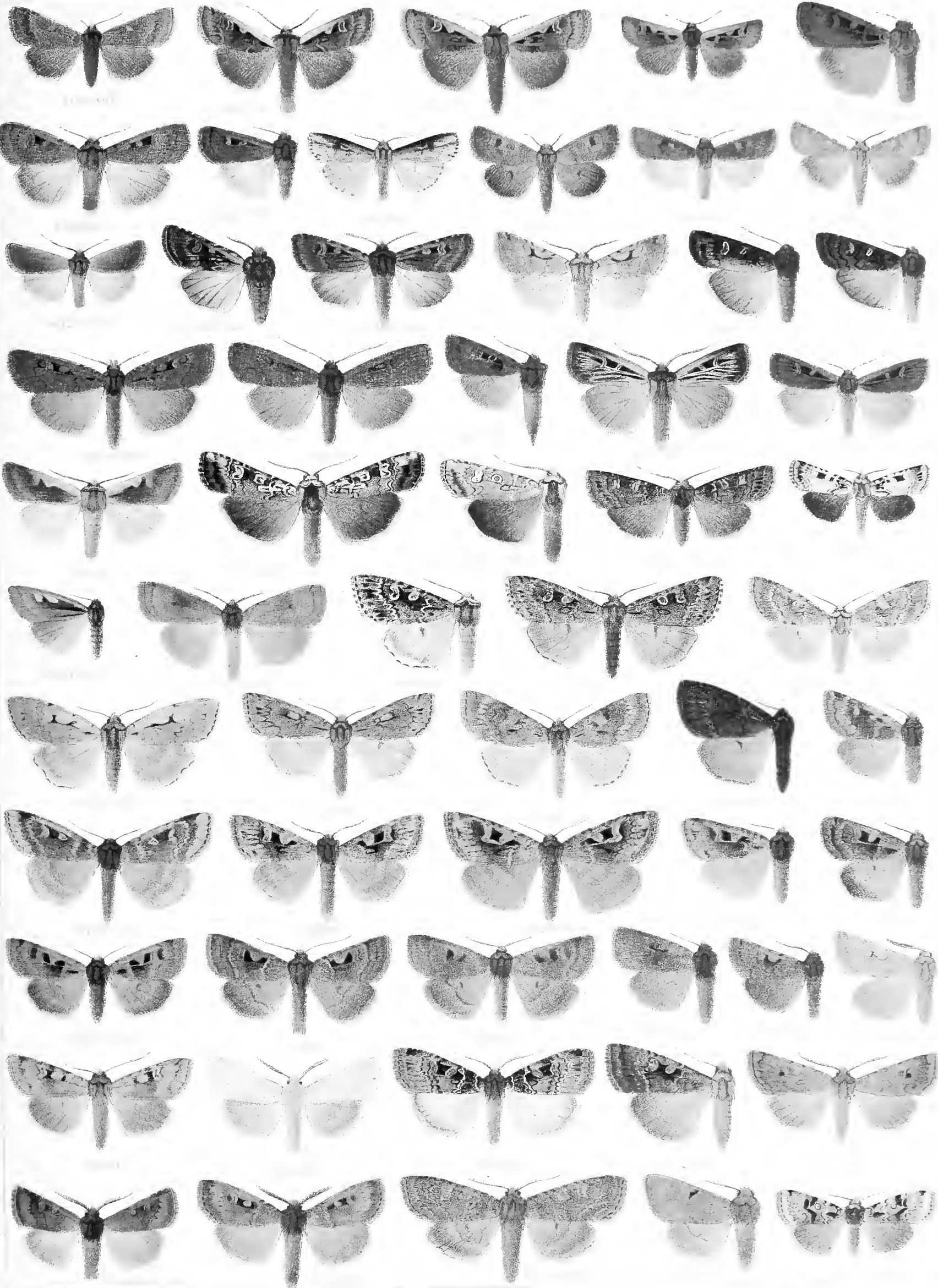




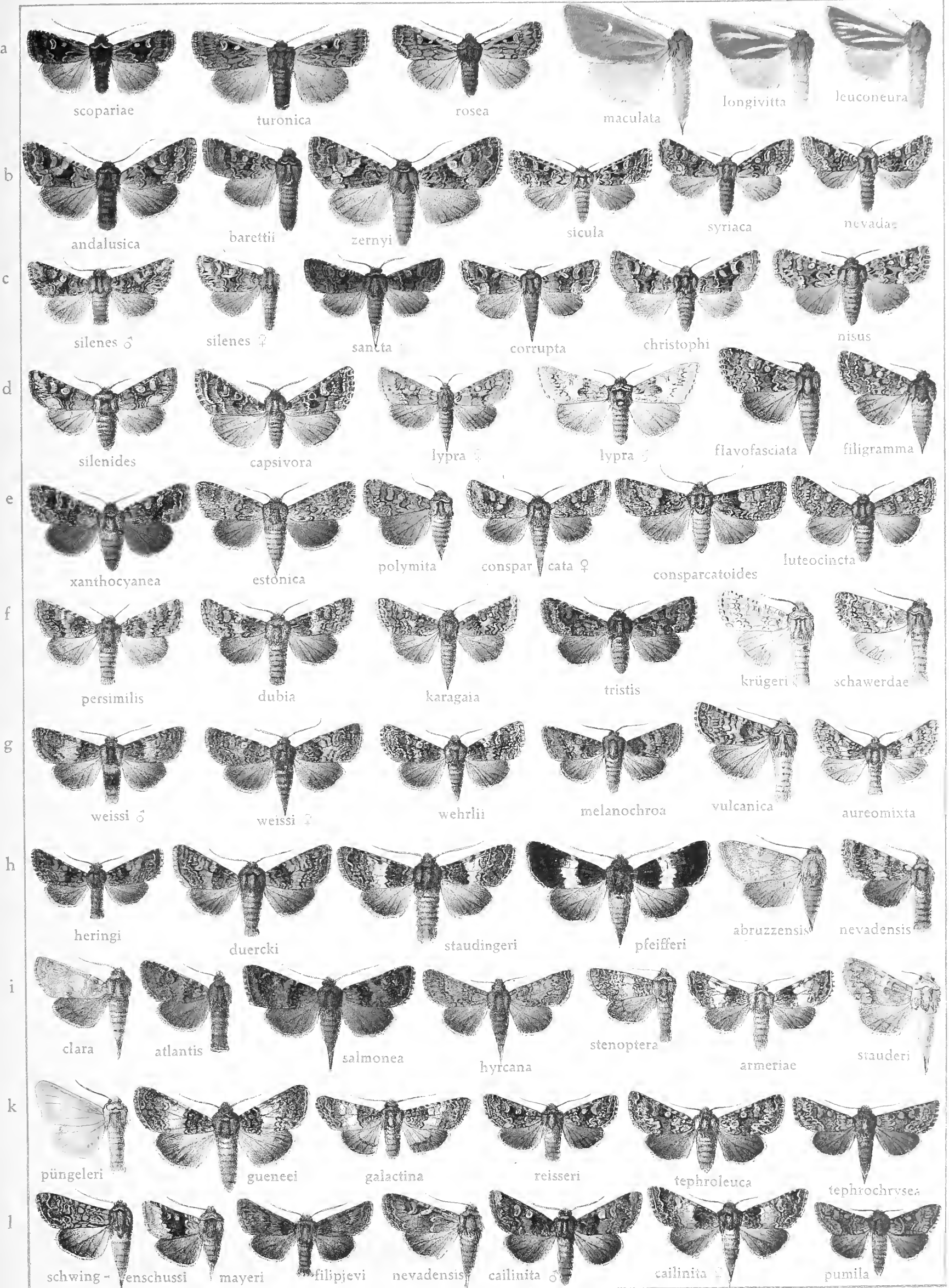


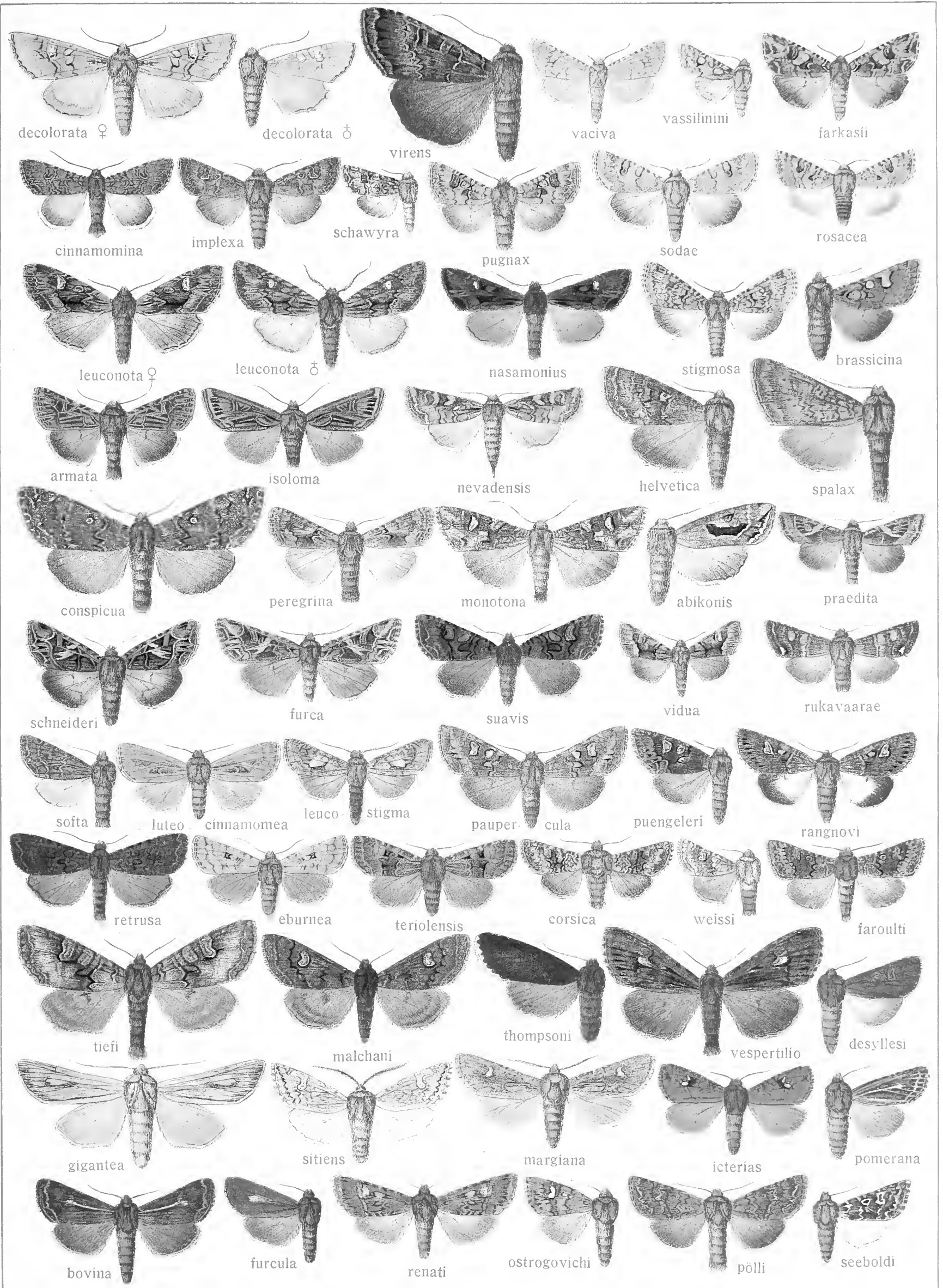


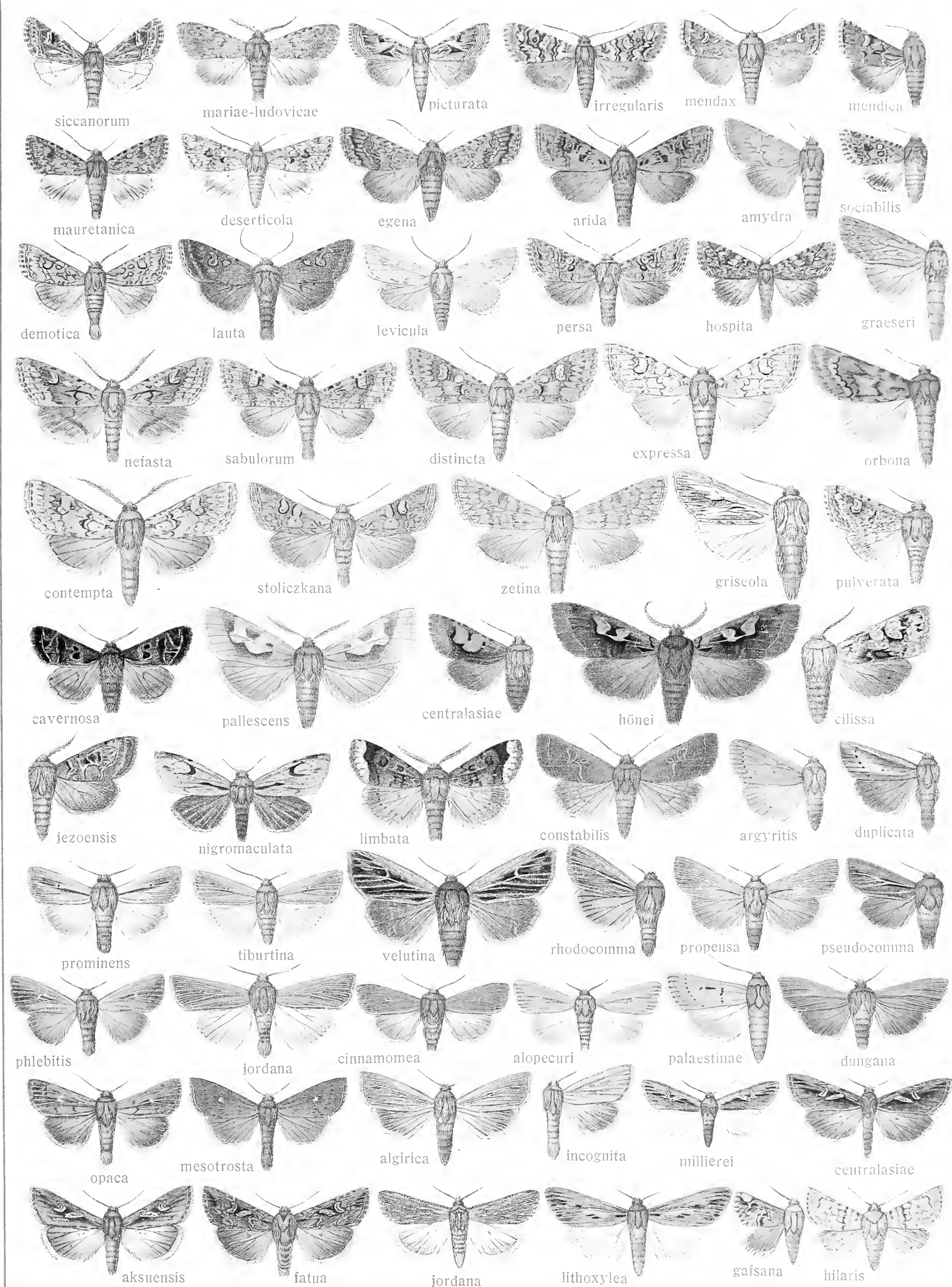


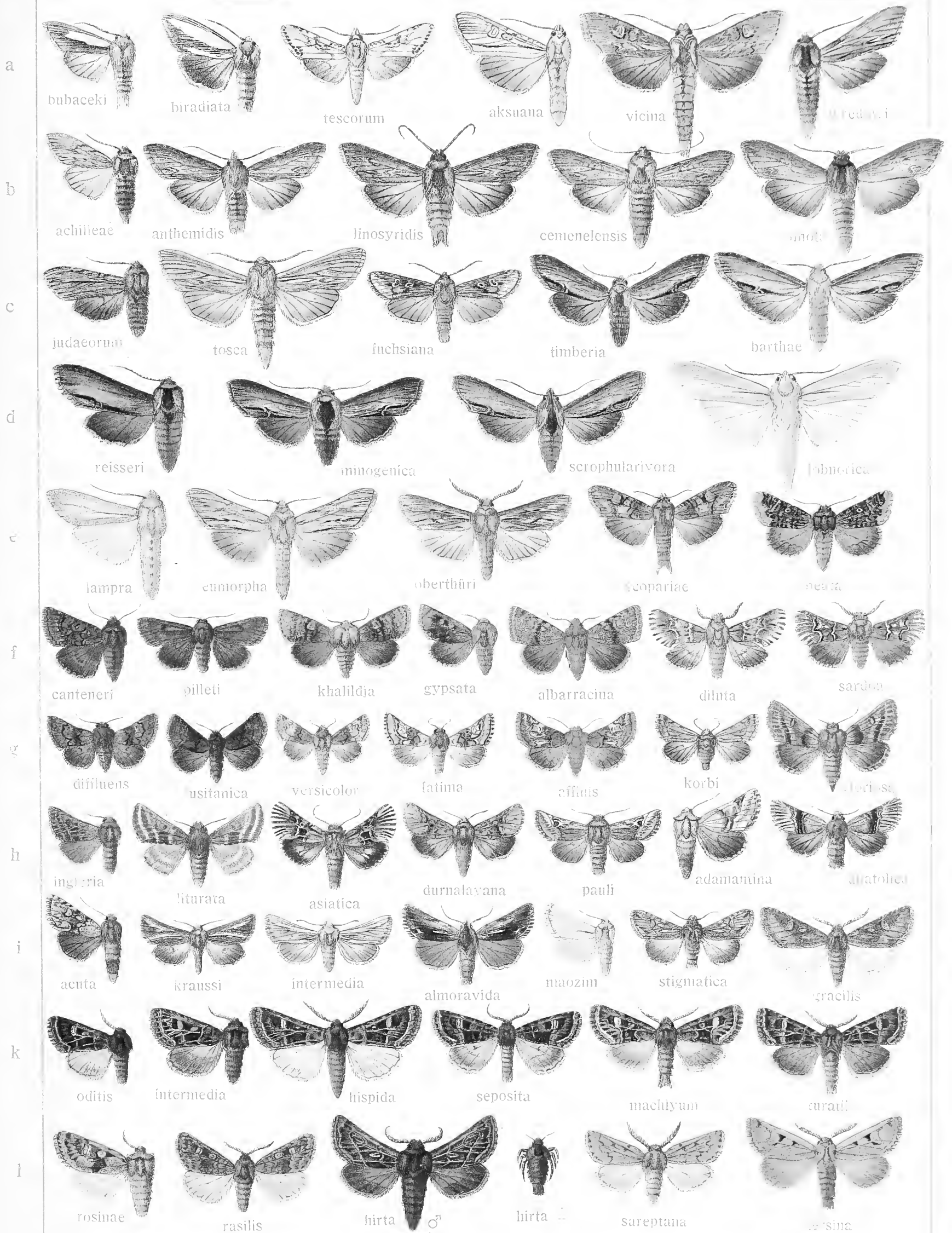




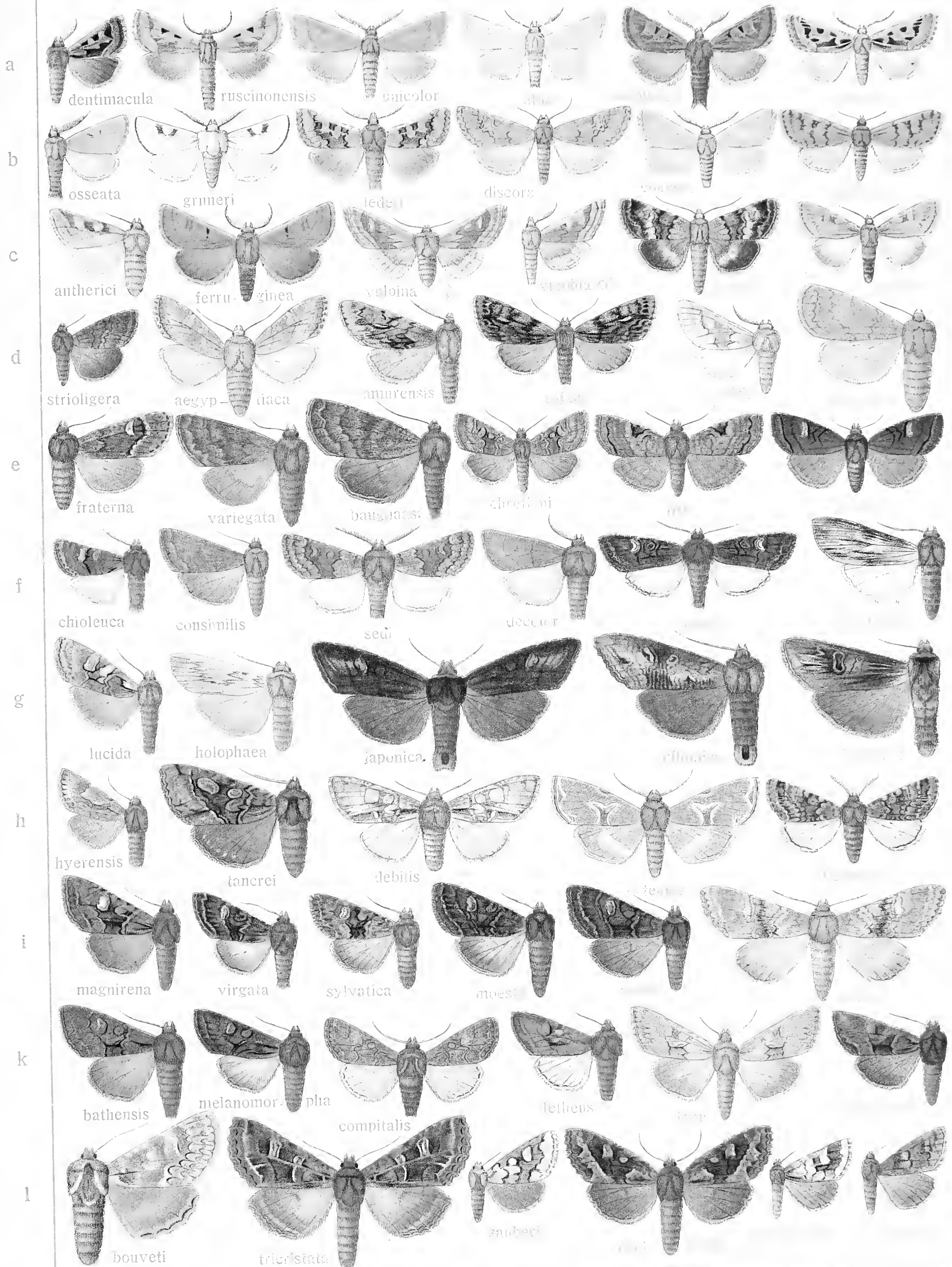


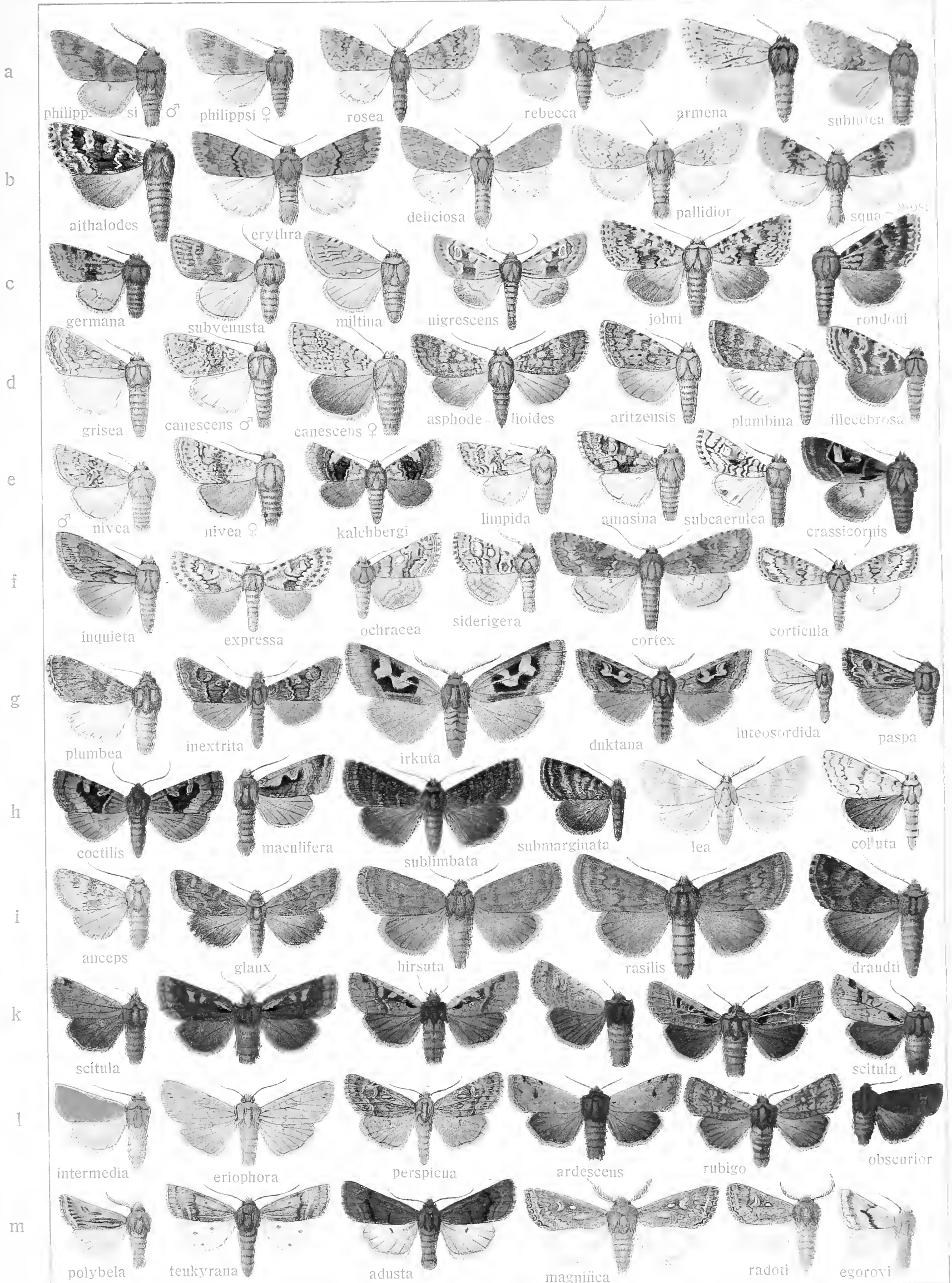


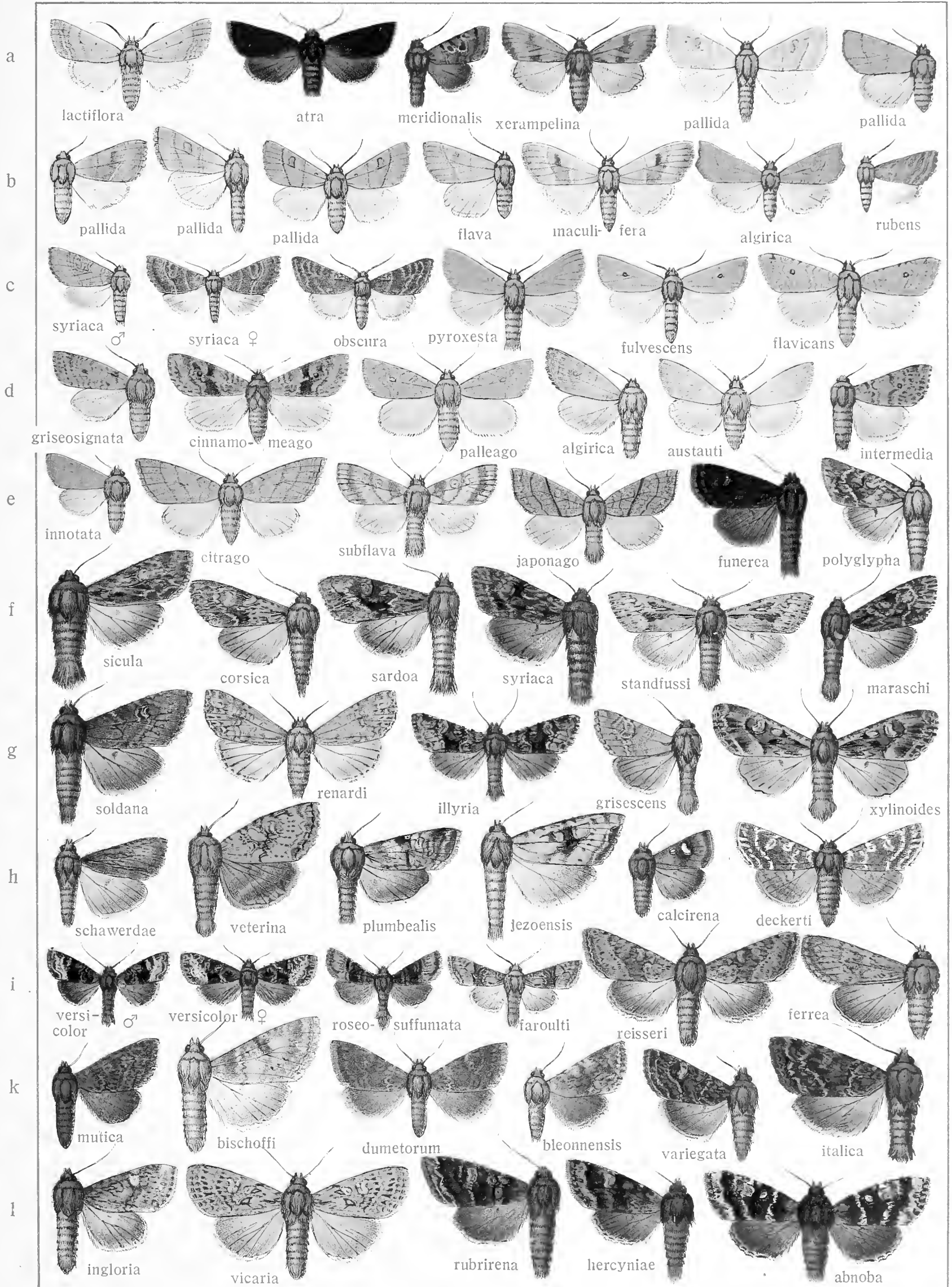


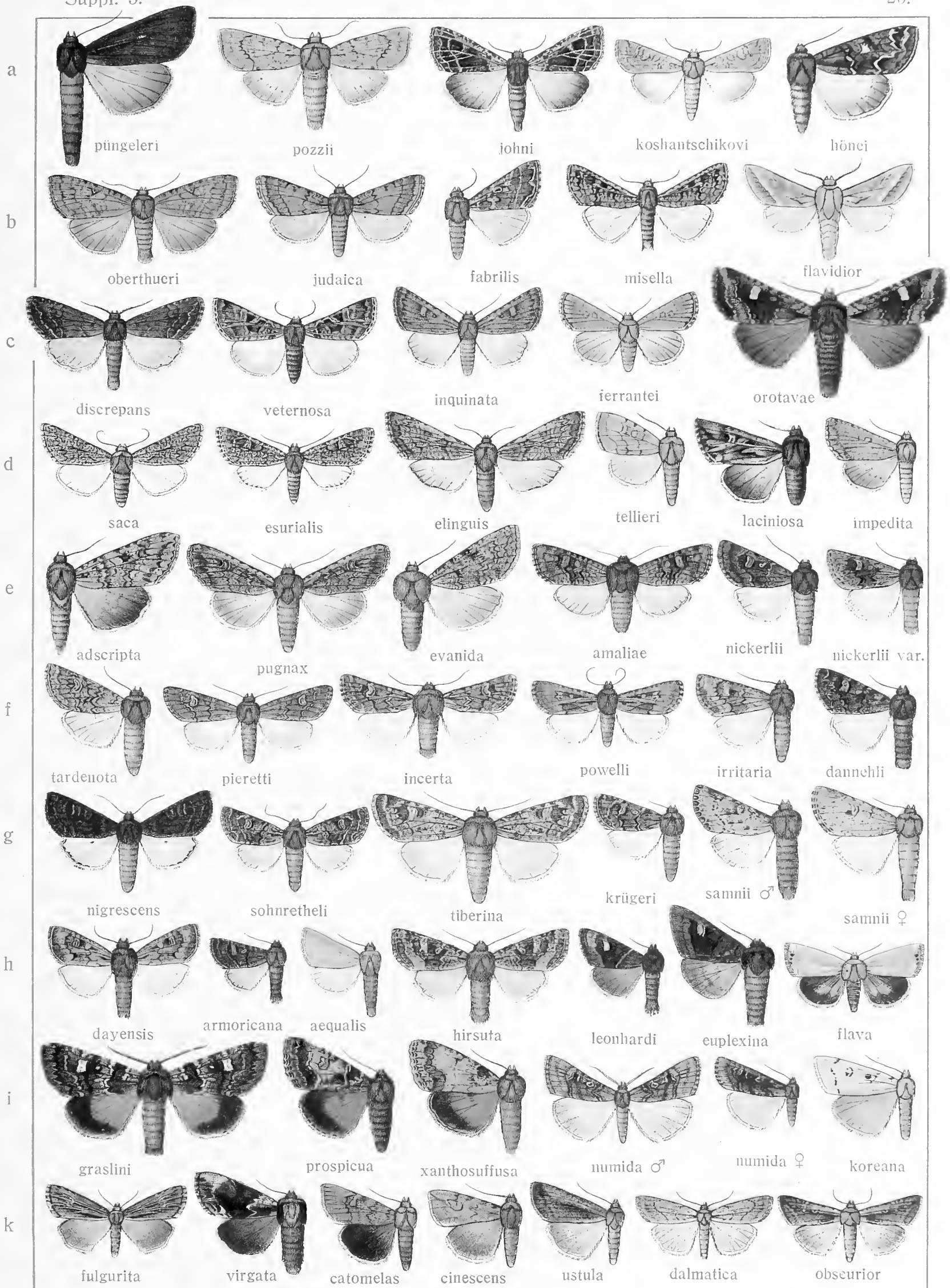




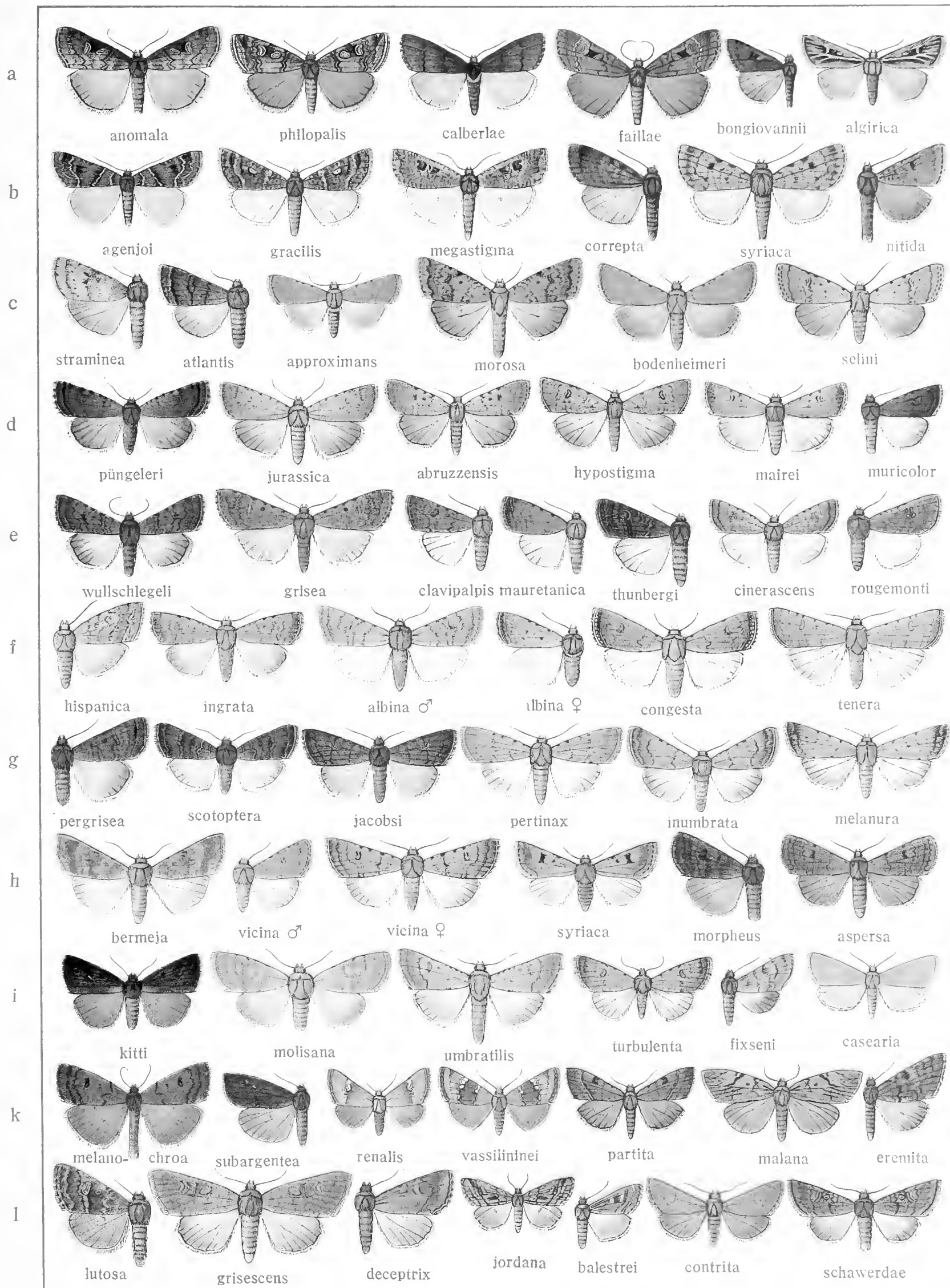


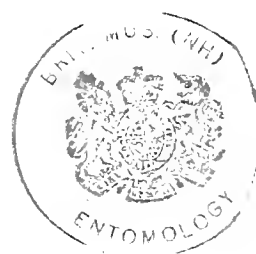


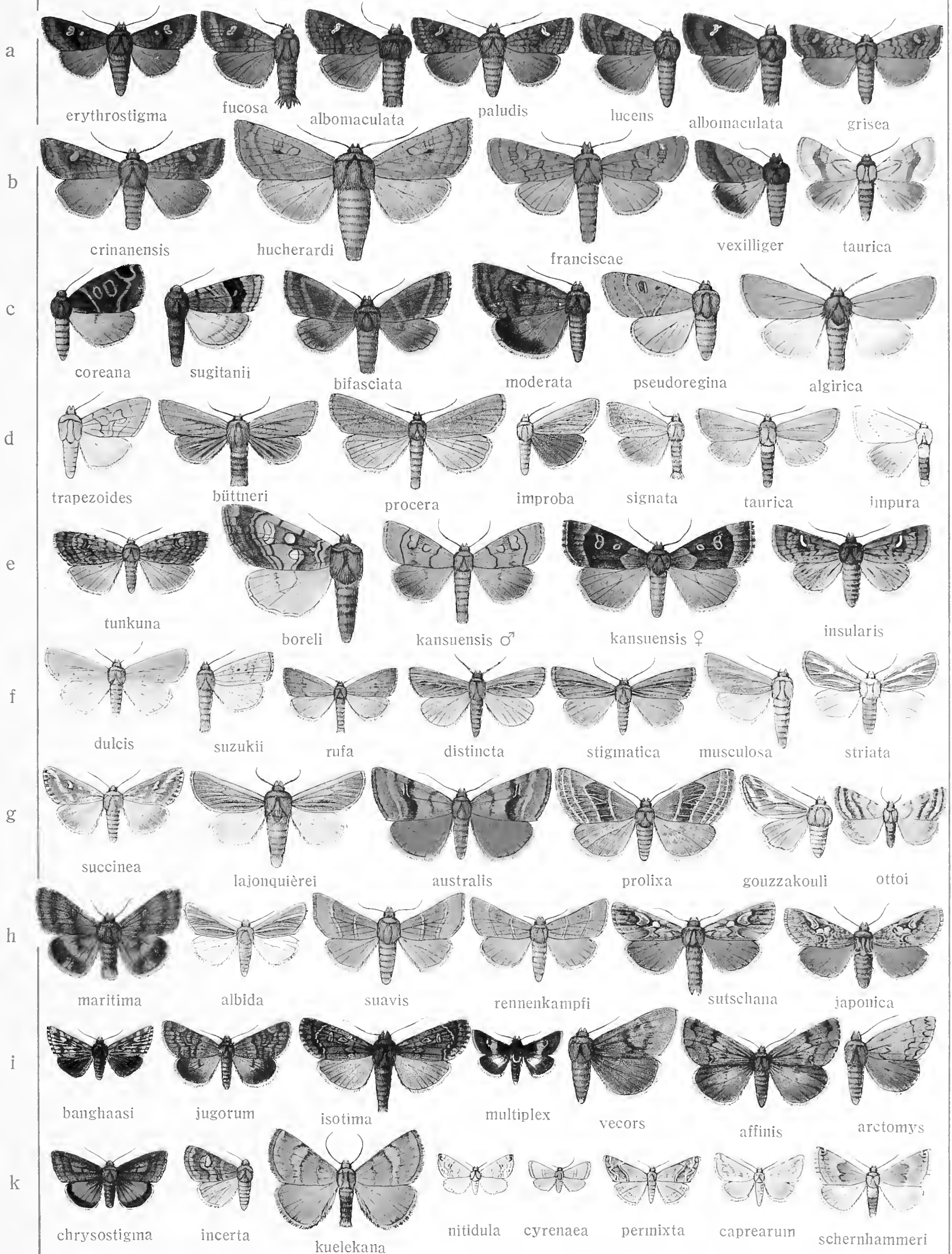




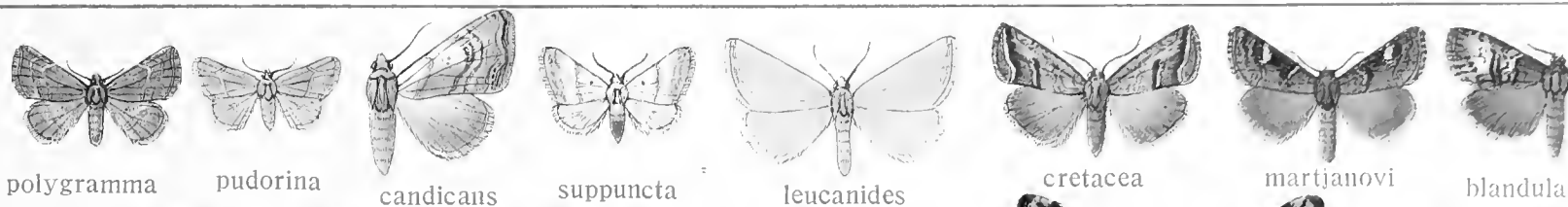




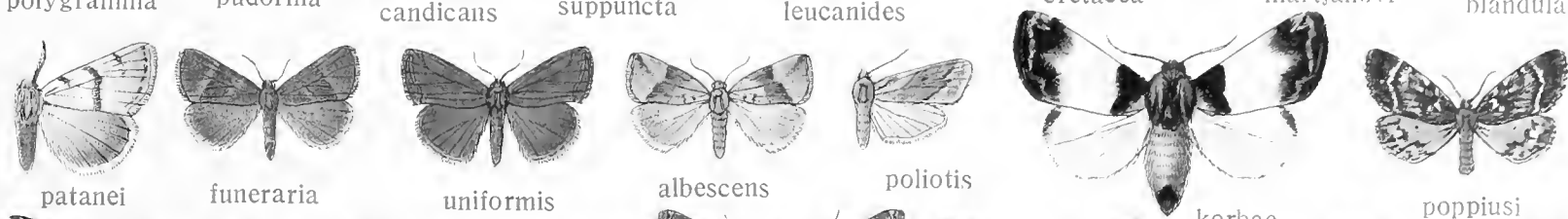




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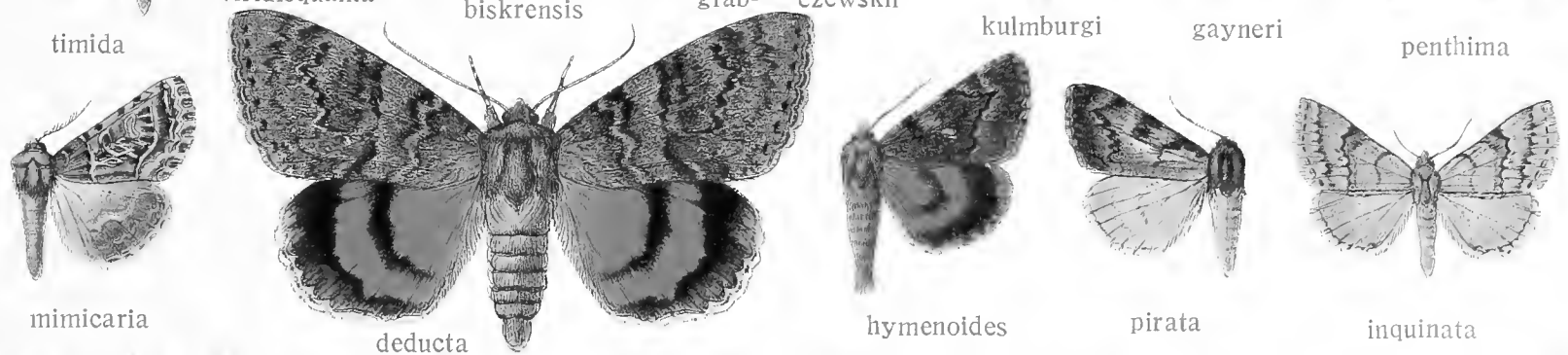
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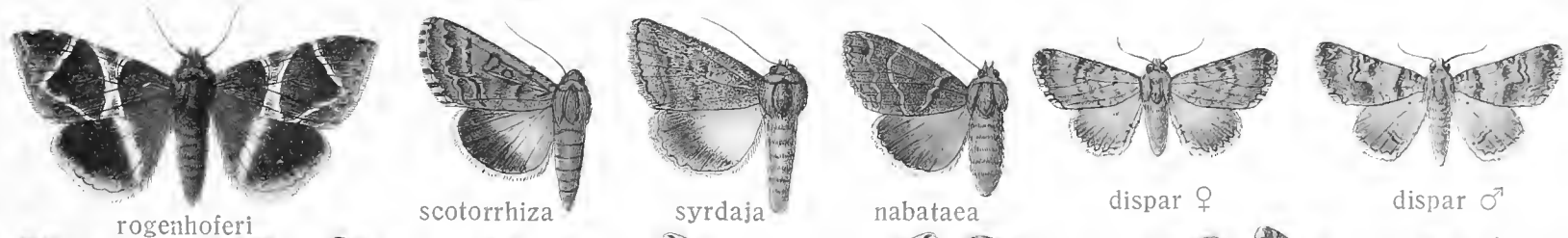
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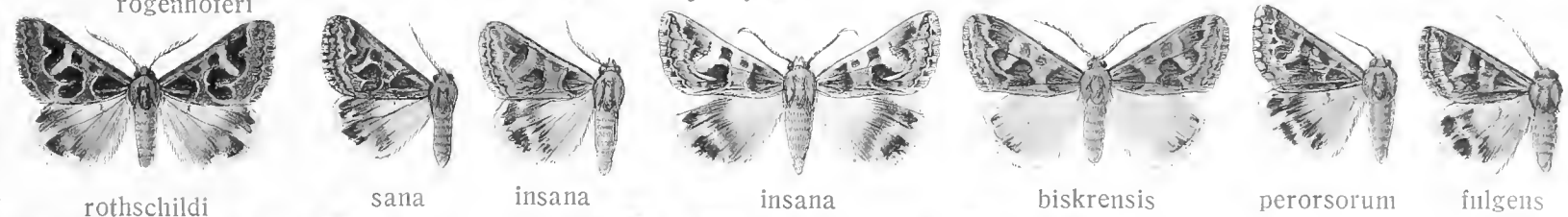
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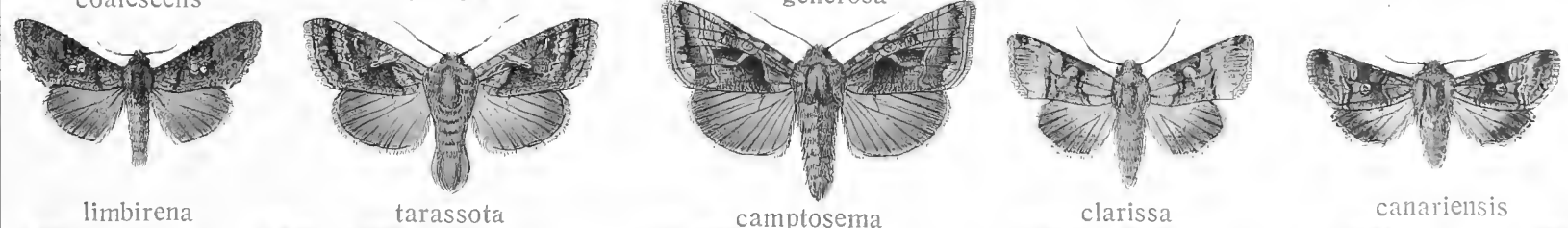
f



g



h



i



k

